


TEST REPORT
INMETRO PORTARIA NO. 62 OF FEBRUARY 17, 2022
TECHNICAL QUALITY REGULATION
FOR LED LIGHT LAMPS WITH BASE-INTEGRATED CONTROL DEVICE

Report Reference No......: 6146104.50P

Tested by (name + signature): Zhijun Wang



Approved by (name + signature).....: Bingshan Wang



Date of issue.....: 2022-11-29

Number of pages.....: 30

Testing Laboratory.....: DEKRA Testing and Certification (Shanghai) Ltd.

Address: 3/F, #250, Jiangchangsan Road building 16 Headquarter Economy Park Shibei Hi-Tech Park, Jing'an District, Shanghai, P.R.C 200436

Test procedure: CBTL ☒ SMT ☐ TMP ☐

Applicant's name.....: LEDLUXE INDUSTRIA COMERCIO IMPORTAÇÃO EXPORTAÇÃO EIRELI.

Address: Protasio Alves 6505 Conjunto 1 CEP:91310-003 Porto Alegre - RS - BRASIL

Test specification:

INMETRO PORTARIA No......: Portaria No. 62 of February 17, 2022

Test procedure: INMETRO

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

Test Report Form No......: Portaria No. 62-2022 V1.1

Test item description: LED Street Light

Trademark: LEDLUXE

Manufacturer: ZheJiang XuGuang Electronic Technology Co., Ltd.
 No 121 Yongxing Rd, Gushan Industrial Park, Qiandaohu Town,
 Chun'an County, Hangzhou City, Zhejiang Province, China

Factory.....: ZheJiang XuGuang Electronic Technology Co., Ltd.
 No 121 Yongxing Rd, Gushan Industrial Park, Qiandaohu Town,
 Chun'an County, Hangzhou City, Zhejiang Province, China

Model/Type reference.....: Details see Appendix I

Summary of testing:

Performance testing refer to test report.

Standard Reference:

- | | |
|---|--|
| <input checked="" type="checkbox"/> ABNT NBR 15129:2012 | <input checked="" type="checkbox"/> ABNT NBR 5123:2016 |
| <input checked="" type="checkbox"/> ABNT NBR 5101:2012 | <input checked="" type="checkbox"/> ABNT NBR 16026:2012 |
| <input checked="" type="checkbox"/> ASTM G154 | <input type="checkbox"/> ABNT NBR IEC 60238:2005 |
| <input checked="" type="checkbox"/> CISPR 15:2013 | <input checked="" type="checkbox"/> ABNT NBR IEC 60598-1:2010 |
| <input checked="" type="checkbox"/> BS EN 55015:2013 | <input type="checkbox"/> ABNT NBR IEC 60662:1997 |
| <input checked="" type="checkbox"/> IEC 61000-3-2:2014 | <input checked="" type="checkbox"/> ABNT NBR IEC 62262:2015 |
| <input checked="" type="checkbox"/> IES TM-21-11 | <input checked="" type="checkbox"/> ABNT NBR IEC 61347-2-13:2012 |
| <input checked="" type="checkbox"/> IESNA LM-79-08 | <input checked="" type="checkbox"/> INMETRO Portaria No. 200 of 2021 |
| <input checked="" type="checkbox"/> IESNA LM-80-08 | |

Test item particulars:

- Light source using.....: ☐ Discharge Lamps ☒ LED Technology
- a) Brand of origin: LEDLUXE
- c) Photometric classification As below
- Energy Class: ☒ Class A ☐ Class B ☐ Class C ☐ Class D
- Lateral Light Distributions.....: ☐ Type I ☒ Type II ☐ Type III
- Vertical Light Distributions.....: ☐ Short ☒ Medium ☐ Long
- Lighting intensity distribution control ..: ☐ Full cutoff ☒ Cutoff ☐ Semi-cutoff
- The corresponding elevation angle: ☒ 0° ☐ 5° ☐ 10° ☐ 15°
- e) Rated voltage (V): 110 – 277V
- f) Rated frequency (Hz): 50 / 60 Hz
- h) Control device used (Brand / Model / Power / Rated electrical output).....: N/A
- o) Rated expected life (h) corresponds to L₇₀ or L₈₀.....: 80000 (L₇₀)
- Declared lumen maintenance (%): 97,4 at 6000 h
- LED light source (Brand/Model): Shenzhen Tongyifang Optoelectronic Technology Co., Ltd/ SE3
- Rated expected life (h) corresponds to t_c for LED control device.....: 80000 (t_c 90 °C)

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: 2022/10/27

Date (s) of performance of tests: 2022/10/27 to 2022/11/29

The test results shown in this report relate only to the tests performed according to the test program. The test object has not been submitted to a full test program.

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Number of the tested samples for each item		
Test	<input type="checkbox"/> Partial test	<input checked="" type="checkbox"/> Type Test
Safety		
Marking		1
Packaging		
Electromagnetic interference and radio frequency		
Leakage Current		
Electric shock protection		
Torque resistance of screws and connections		
Internal and external wiring		1
Socket for photoelectric relay (when applicable)		
Degree of protection		
Dielectric strength		1
Insulation Resistance		
Wind force resistance		1
Vibration resistance		
Protection against external mechanical impacts		
Ultraviolet radiation resistance for polymer (UV) lenses and refractors		1
Energy Efficiency		
Power		3
Power factor		
Voltage and current output		
Supply current		
Harmonics Limit		
Energy efficiency		3
Correlated color temperature (TCC)		
Color reproduction index (IRC)		
Classification of distribution		
Classification of flux distribution control (CDL		
Maintenance of the luminous flux of the luminaire		1
Built-in control device durability		1
Standard / Regulation	As requested	Portaria No. 62-2022
Applicable Clauses which can be adopted for the application		
<input checked="" type="checkbox"/> Clause 4.1 – ELECTRICAL SAFETY REQUIREMENTS		
<input checked="" type="checkbox"/> Clause 4.2 – PERFORMRANCE REQUIREMENTS		
<input checked="" type="checkbox"/> Clause 5 – MARKING REQUIREMENTS AND INSTRUCTIONS		

General remarks:

Throughout this report a ☒ comma or ☐ point is used as the decimal separator.

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 testing laboratory.

- Appendix I: Technical Specification Spreadsheet - PET
- Appendix II: Test Results
- Appendix III: LED source LM-80 report
- Appendix IV: Photos

General product information:

N/A

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INMETRO Portaria No. 62-2022			
Clause	Test Item and requirements	Results - Remark	Verdict
4	TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES WITH LED TECHNOLOGY		P
4.1	Electrical safety requirements		P
4.1.1	Conditions of operation		P
	a) altitude not exceeding 1,500 m; b) average ambient air temperature over a 24-hour period not exceeding +35 °C; c) ambient air temperature between -5 °C and +50 °C; d) relative humidity up to 100%. :	50 °C	P
4.1.2	Packaging		P
	The luminaires must be individually packed in packages suitable for the type of transport (in which it is applied) and for the usual loading, unloading, handling and storage operations. :		P
4.1.3	Internal and external wiring		P
	The luminaire must be provided with adequate anchoring, so that the conductors of the supply cables are relieved of mechanical stress at the points where they are connected to the terminals. :		P
4.1.4	Socket for photoelectric relay (when applicable)		P
	The photoelectric relay socket (when applicable) must have insulation resistance, dielectric strength, ability to conduct currents from the appropriate contacts and adequate mechanical fixing of the conductors, in order to avoid the risk of electric shock, overheating and undue unlocking of the pins and cables. :		P
4.1.5	Degree of protection		P
	The housing of the luminaire must ensure the degree of protection against the penetration of dust, solid objects and moisture, in accordance with the classification of the luminaire and the IP code marked on the luminaire. :		P
	The housing of the vital parts (LED, secondary optical system and controller) must have at least a degree of protection IP-66, according to ABNT NBR IEC 60598-1:2010 (Light fixtures - Part 1: General requirements and tests). :		P

INMETRO Portaria No. 62-2022			
Clause	Test Item and requirements	Results - Remark	Verdict
	If the controller is IP-65 or higher, the controller housing in the luminaire must be at least IP-44.....:		N/A
4.1.6	Dielectric strength and Insulation Resistance		P
	The insulation resistance and dielectric strength must be adequate, so that the luminaire is free from faults in the electrical insulation so that, at operating temperature, the leakage current from the device is not excessive.:		P
4.1.7	Leakage Current		P
	The leakage current that may occur during normal use of the luminaire must not cause an electric shock hazard.:		P
4.1.8	Electric shock protection		P
	Luminaires shall be constructed in such a way that their live parts are not accessible when the luminaire is installed and electrically connected for normal use.:		P
4.1.9	Electromagnetic interference and radio frequency		P
	Filters must be provided in the controller (driver) to suppress electromagnetic and radio frequency interference.:		P
4.1.10	Protection against external mechanical impacts		P
	Luminaires must have a resistance to external mechanical impacts to which they are subject under the conditions of use.:		P
	Luminaires must have, at least, degree of protection IK08, according to the ABNT NBR IEC 62262:2015 standard (Degrees of protection ensured by electrical equipment enclosures against external mechanical impacts (IK Code))......:		P
4.1.11	Torque resistance of screws and connections		P
	The screws used in the luminaires and in the connections intended for the installation of the luminaires must not show any deformation during tightening and loosening or cause deformation or breakage of the luminaire.:		P

INMETRO Portaria No. 62-2022			
Clause	Test Item and requirements	Results - Remark	Verdict

4.1.12	Wind force resistance		P
	Luminaires must be resistant to the wind force to which they are subjected when in normal use. :		P

4.1.13	Vibration resistance		P
	The luminaires must continue to work in situations of vibration to which they are subject when in normal use, not being able to present any electrical or mechanical failures such as cracks, breaks, warping, opening of the fasteners and others that may compromise their performance. :		P

INMETRO Portaria No. 62-2022			
Clause	Test Item and requirements	Results - Remark	Verdict

4	TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES WITH LED TECHNOLOGY		P
4.2	Performance requirements		P
4.2.1	Power		P
	The total power of the circuit, at rated voltage, must not exceed 110% of the declared value. :	See table 1	P

4.2.2	Power factor		P
	The power factor of the luminaires must meet the following requirements: The measured power factor of the circuit cannot be less than the declared value by more than 0.05, when the luminaire is supplied with rated voltage and frequency. The power factor must be equal to or greater than 0.92. :	See table 1	P

4.2.3	Voltage and current output		P
	The output voltage and current conditions of the control device during operation shall be as follows: For control devices with non-stabilized output voltage, when supplied with the rated voltage, the output voltage must not differ by more than $\pm 10\%$ from the rated voltage of the LED modules. :	See table 2	N/A
	For control devices with a stabilized output voltage, when powered at any voltage between 92% and 106% of the rated voltage, the output voltage cannot differ by more than $\pm 10\%$ from the rated voltage of the LED modules. :	See table 2	N/A
	For control devices with non-stabilized output current, when supplied with the rated voltage, the output current cannot differ by more than $\pm 10\%$ from the rated current of the LED modules. :	See table 2	N/A
	For control devices with stabilized output current, when powered at any voltage between 92% and 106% of the rated voltage, the output current cannot vary more than $\pm 10\%$ of the rated current of the LED modules. :	See table 2	P
	The luminaire with LED technology must have a surge protection device. :	See table 2	P

4.2.4	Supply current and Harmonics Limit		P
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INMETRO Portaria No. 62-2022			
Clause	Test Item and requirements	Results - Remark	Verdict

	The supply current, at rated voltage, must not differ by more than 10% from the value declared on the control device or in the supplier's literature :	See table 1	P
	The harmonics of the supply current must comply with the IEC 61000-3-2:2014 standard ((Electromagnetic compatibility (EMC) - Limits for harmonic current emissions (equipment input current < 16 A per phase))..... :		P

4.2.5	Energy efficiency		P															
	<p>The luminaires must meet the minimum energy efficiency (EE) of 68 lm/W, as well as be classified in the Energy Efficiency classes of Table 5:</p> <p>Table 5 LED Road Luminaire EE</p> <table> <tr> <th>Classes</th> <th>Energy EfficiencyLevel (lm/W)</th> <th>Minimum Acceptable Value Measured (lm/W)</th> </tr> <tr> <td>A</td> <td>EE≥100</td> <td>98</td> </tr> <tr> <td>B</td> <td>90≤EE<100</td> <td>88</td> </tr> <tr> <td>C</td> <td>80≤EE<90</td> <td>78</td> </tr> <tr> <td>D</td> <td>70≤EE<80</td> <td>68</td> </tr> </table> <p>..... :</p>	Classes	Energy EfficiencyLevel (lm/W)	Minimum Acceptable Value Measured (lm/W)	A	EE≥100	98	B	90≤EE<100	88	C	80≤EE<90	78	D	70≤EE<80	68	See table 1	P
Classes	Energy EfficiencyLevel (lm/W)	Minimum Acceptable Value Measured (lm/W)																
A	EE≥100	98																
B	90≤EE<100	88																
C	80≤EE<90	78																
D	70≤EE<80	68																
	<p>The average energy efficiency measured cannot be less than the minimum acceptable values defined in Table 5, nor less than 90% of the declared energy efficiency value..... :</p>		P															

4.2.6	Correlated color temperature (TCC)		P																																	
	<p>A temperatura de cor correlata (TCC) nominal de uma lâmpada deve se situar entre 2.700 K e 6.500 K, seguindo as variações estabelecidas na Tabela 6:</p> <table><tr><td colspan="2">Table 6</td><td>CCT</td></tr><tr><th>Minimum value (K)</th><th>Rated TCC (K)</th><th>Maximum Value (K)</th></tr><tr><td>2580</td><td>2700</td><td>2870</td></tr><tr><td>2870</td><td>3000</td><td>3220</td></tr><tr><td>3220</td><td>3500</td><td>3710</td></tr><tr><td>3710</td><td>4000</td><td>4260</td></tr><tr><td>4260</td><td>4500</td><td>4746</td></tr><tr><td>4746</td><td>5000</td><td>5312</td></tr><tr><td>5312</td><td>5700</td><td>6022</td></tr><tr><td>6022</td><td>6500</td><td>7042</td></tr><tr><td>Flexible TCC (2800 – 5600K)</td><td>TFⁱ ± ΔTⁱⁱ</td><td></td></tr></table> <p>i) TF must be chosen in 100K steps (2800, 2900, ..., 6400K), excluding the TCC nominal values listed above.</p> <p>ii) ΔT must be calculated by $\Delta T = 1,1900 \times 10^{-8} \times T^3 - 1,5434 \times 10^{-4} \times T^2 + 0,7168 \times T - 902,55$</p> <p>..... :</p>	Table 6		CCT	Minimum value (K)	Rated TCC (K)	Maximum Value (K)	2580	2700	2870	2870	3000	3220	3220	3500	3710	3710	4000	4260	4260	4500	4746	4746	5000	5312	5312	5700	6022	6022	6500	7042	Flexible TCC (2800 – 5600K)	TF ⁱ ± ΔT ⁱⁱ		See table 1	P
Table 6		CCT																																		
Minimum value (K)	Rated TCC (K)	Maximum Value (K)																																		
2580	2700	2870																																		
2870	3000	3220																																		
3220	3500	3710																																		
3710	4000	4260																																		
4260	4500	4746																																		
4746	5000	5312																																		
5312	5700	6022																																		
6022	6500	7042																																		
Flexible TCC (2800 – 5600K)	TF ⁱ ± ΔT ⁱⁱ																																			

INMETRO Portaria No. 62-2022																		
Clause	Test Item and requirements	Results - Remark	Verdict															
4.2.7	Color reproduction index (IRC)		P															
	The General Color Reproduction Index (Ra), which characterizes the Color Reproduction Index (CRI), must be greater than or equal to 70 (Ra ≥ 70). ... :	See table 1	P															
4.2.8	Maintenance of the luminous flux of the luminaire		P															
	Minimum life expectancy for maintaining 70% luminous flux (L70) is 0,000 hours. :		P															
4.2.9	Built-in control device durability		P															
	The built-in control device must have a durability commensurate with the rated life of the lamp. :		P															
4.2.10	Classification of distribution		P															
	<p>The luminaire must be classified according to the transverse and longitudinal light intensity distributions, according to the categories in Table 7, for an installation with an elevation angle of 0°).</p> <p>Table 7 Classification of light intensity distributions</p> <table><tr><th>Distribution</th><th>Category of classification</th></tr><tr><td>Transversal</td><td>Type I / II / III</td></tr><tr><td>Longitudinal</td><td>Short / Mean / Long</td></tr></table> <p>..... :</p>	Distribution	Category of classification	Transversal	Type I / II / III	Longitudinal	Short / Mean / Long	See table 4	P									
Distribution	Category of classification																	
Transversal	Type I / II / III																	
Longitudinal	Short / Mean / Long																	
4.2.11	Classification of luminous distribution control (CDL)		P															
	<p>The luminaire must be classified as to the control of light distribution (CDL), for an installation with an elevation angle of 0°, in the categories specified in Table 8</p> <p>Table 8 CDL Category</p> <table><tr><th rowspan="2">Category</th><th colspan="2">Criterion</th></tr><tr><th>Direction of light emitted by the light source</th><th>CDL</th></tr><tr><td rowspan="2">Totally limited</td><td>over 90°</td><td>0%</td></tr><tr><td>over 80° up to 90°</td><td>≤ 10%</td></tr><tr><td rowspan="2">Limited</td><td>over 90°</td><td>≤ 2,5%</td></tr><tr><td>over 80° up to 90°</td><td>≤ 10%</td></tr></table> <p>..... :</p>	Category	Criterion		Direction of light emitted by the light source	CDL	Totally limited	over 90°	0%	over 80° up to 90°	≤ 10%	Limited	over 90°	≤ 2,5%	over 80° up to 90°	≤ 10%	See table 4	P
Category	Criterion																	
	Direction of light emitted by the light source	CDL																
Totally limited	over 90°	0%																
	over 80° up to 90°	≤ 10%																
Limited	over 90°	≤ 2,5%																
	over 80° up to 90°	≤ 10%																
4.2.12	Ultraviolet radiation resistance for polymer (UV) lenses and refractors		N/A															

INMETRO Portaria No. 62-2022			
Clause	Test Item and requirements	Results - Remark	Verdict
	a) Polymer lenses and refractors subject to weather exposure must not show premature degradation that compromises the operational performance of the luminaires; b) The transparency of polymer lenses and refractors must not be less than 90% of the initial value; c) The refractors must be designed against UV rays and with uniform thickness, in order to avoid distortions in the photometric curve. :		N/A

INMETRO Portaria No. 62-2022			
Clause	Test Item and requirements	Results - Remark	Verdict

5	MARKING REQUIREMENTS AND INSTRUCTIONS		P
5.1	Marking		P
	The markings must be legibly and indelibly indicated on the luminaire, by means of an adhesive, engraving or other method that guarantees legibility and indelibility. Additionally, the luminaires must present the following information, in addition to that established in the ABNT NBR 15129:2012 standard (Luminaires for Public Lighting - Particular requirements):		P
	a) Serial number of manufacture of the luminaire;		P
:	b) Luminaire model.		P

5.2	Instruction leaflet		P
	The insulation resistance and dielectric strength must be adequate, so that the luminaire is free from faults in the electrical insulation so that, at operating temperature, the leakage current from the device is not excessive.		P
	a) name and/or brand of the supplier;		P
	b) model or supplier code;		P
	c) photometric classification, with indication of the corresponding elevation angle;		P
	d) rated power, in watts;		P
	e) rated voltage range, in volts;		P
	f) rated frequency, in hertz;		P
	g) country of origin of the product;		P
	h) user instructions for electrical installation, recommended handling and care;		P
	i) information about the importer or distributor;		P
	j) product warranty, from the date of the sales note to the consumer, being at least 60 months;		P
	k) expiry date for storage: undetermined;		P
	l) type of protection against electric shock;		P
	m) guidelines for obtaining the IES file of photometry.		P

5.3	Additional marking for LED road luminaire		P
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INMETRO Portaria No. 62-2022			
Clause	Test Item and requirements	Results - Remark	Verdict

	a) The instruction leaflet must also contain information about the controller (brand, model, power, rated electrical current) and life expectancy (h) that corresponds to maintaining a luminous flux of 70% (L70) or 80% (L80)		P
	b) The controller must be marked according to ABNT NBR IEC 61347-2-13:2012 (Lamp Control Device - Part 2-13: Particular requirements for dc or ac powered electronic control for LED modules) and ABNT NBR 16026:2012 (DC or AC electronic control device for LED modules – Performance requirements)		P
	c) Packages must be identified externally with the following minimum information, legibly and indelibly marked, by means of an adhesive, engraving or other method that guarantees legibility and indelibility: <ul style="list-style-type: none">- name and/or factory brand;- model or light fixture type;- CNPJ and supplier address;- Gross weight; and- Capacity and pile position.		P

Appendix I: Technical Specification Spreadsheet - PET

01 – COMMERCIAL NAME											
BRAND		LEDLUXE									
SUPPLIER		ZheJiang XuGuang Electronic Technology Co., Ltd.									
MANUFACTURER		ZheJiang XuGuang Electronic Technology Co., Ltd.									
02 - IDENTIFICATION OF FAMILY											
FAMILY (*)				LEDLUXE/LED Technology/ Street light LED/ 80000h							
LED BRAND / MODEL				LED Technology							
TYPE OF LIGHT				Street light LED							
DECLARED LIFE (hr)				80000h							
FAMILY CODE: LED TECHNOLOGY/TYPE OF LIGHT/ DECLARED LIFE											
BARCODE	MODEL	TEST VOLTAGE (V)	FREQ.(HZ)	POWER(W)	POWER FACTOR	LUMINOUS FLUX (lm)	Optical Yied Ratio (%)	EE (lm/W)	CRI	CCT (K)	TEST / LABORATORY REPORT
2476894000	LUXE-50-4000K	110-277V	50/60	50	0,95	7500	/	150	70	4000	6146104.50P
347684000	LUXE-100-4000K	110-277V	50/60	100	0,98	15000	/	150	70	4000	6146104.50P
4476894000	LUXE-150-4000K	110-277V	50/60	150	0,98	22500	/	150	70	4000	6146104.50P
5476894000	LUXE-200-4000K	110-277V	50/60	200	0,98	30000	/	150	70	4000	6146104.50P
6476894000	LUXE-240-4000K	110-277V	50/60	240	0,98	36000	/	150	70	4000	6146104.50P

01 – COMMERCIAL NAME											
BRAND		LEDLUXE									
SUPPLIER		ZheJiang XuGuang Electronic Technology Co., Ltd.									
MANUFACTURER		ZheJiang XuGuang Electronic Technology Co., Ltd.									
02 - IDENTIFICATION OF FAMILY											
FAMILY (*)				LEDLUXE/LED Technology/ Street light LED/ 80000h							
LED BRAND / MODEL				LED Technology							
TYPE OF LIGHT				Street light LED							
DECLARED LIFE (hr)				80000h							
FAMILY CODE: LED TECHNOLOGY/TYPE OF LIGHT/ DECLARED LIFE											
BARCODE	MODEL	TEST VOLTAGE (V)	FREQ.(HZ)	POWER(W)	POWER FACTOR	LUMINOUS FLUX (lm)	Optical Yied Ratio (%)	EE (lm/W)	CRI	CCT (K)	TEST / LABORATORY REPORT
7476895000	LUXE-50-5000K	110-277V	50/60	50	0,95	7500	/	150	70	5000	6146104.50P
8476895000	LUXE-100-5000K	110-277V	50/60	100	0,98	15000	/	150	70	5000	6146104.50P
9476895000	LUXE-150-5000K	110-277V	50/60	150	0,98	22500	/	150	70	5000	6146104.50P
14476895000	LUXE-200-5000K	110-277V	50/60	200	0,98	30000	/	150	70	5000	6146104.50P
1076895000	LUXE-240-5000K	110-277V	50/60	240	0,98	36000	/	150	70	5000	6146104.50P

Add/Delete Rows as Necessary

Appendix II: Test Results

Table 1: Initial Test Results:

Summary of test results (if applicable):

Test Results										
Model	Test Voltage (V)	Test Current (A)	Lamp Wattage (W)	Power factor	Luminous flux Φ (lm)	Efficacy (lm/W)	CRI	CCT (K)	Chromaticity	
									x	y
LUXE-50-4000K	127	0,381	47,9	0,990	7419,66	154,9	72,0	4202	0,3720	0,3712
	220	0,235	47,6	0,921	7449,77	156,5	72,1	4209	0,3719	0,3712
	277									
LUXE-100-4000K	127	0,778	98,2	0,994	14561,5	148,3	71,0	4064	0,3786	0,385
	220	0,4571	96,3	0,958	14548,1	151,1	71,0	4069	0,3787	0,383
	277									
LUXE-150-4000K	127	1,1	139,2	0,996	20849,8	149,8	71,0	4088	0,3777	0,3784
	220	0,642	136,9	0,969	20845,3	152,3	71,1	4080	0,3775	0,3785
	277									
LUXE-200-4000K	127	1,478	187,15	0,997	28625,9	153,0	71,0	4093	0,3773	0,3777
	220	0,864	184,05	0,968	28647,9	155,7	71,0	4101	0,3776	0,3775
	277									
LUXE-240-4000K	127	1,76	222,3	0,995	32342,2	145,5	71,0	4100	0,3768	0,3766
	220	1,022	219,2	0,975	32431,1	148,0	71,0	4107	0,3766	0,3765
	277									
LUXE-50-5000K	127	0,391	49,1	0,987	7756,5	158,0	71,0	5109	0,3423	0,3525
	220	0,241	49,0	0,924	7763,0	158,4	71,0	5109	0,3424	0,3524
	277									

LUXE-100-5000K	127	0,786	99,3	0,995	14871,5	149,8	71,0	4929	0,3479	0,3605
	220	0,462	97,3	0,958	14877,2	152,9	71,0	4919	0,3477	0,3606
	277									
LUXE-150-5000K	127	1,16	147,3	0,996	22001,6	149,4	71,0	4972	0,3466	0,3597
	220	0,677	144,7	0,971	22011,4	152,1	71,0	4968	0,3468	0,3596
	277									
LUXE-200-5000K	127	1,55	196,6	0,997	29733,9	151,2	71,0	4974	0,3465	0,3596
	220	0,904	193,2	0,971	29764,3	154,1	71,0	4970	0,3465	0,3598
	277									
LUXE-240-5000K	127	1,79	226,6	0,997	33214,7	146,6	71,0	4951	0,3471	0,3590
	220	1,04	222,7	0,974	33241,8	149,3	71,0	4959	0,3470	0,3591
	277									

Table 2: Output voltage and current of control device during operation:

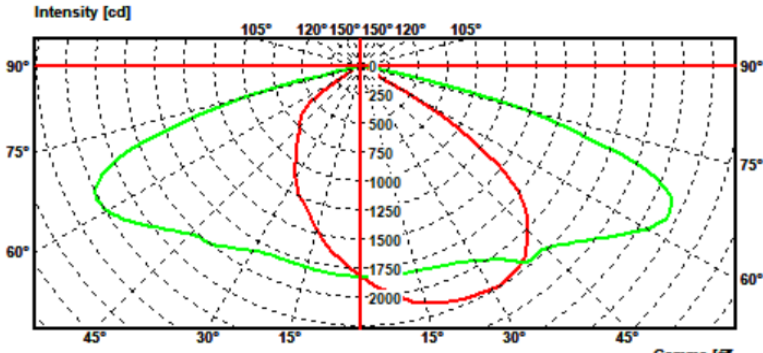
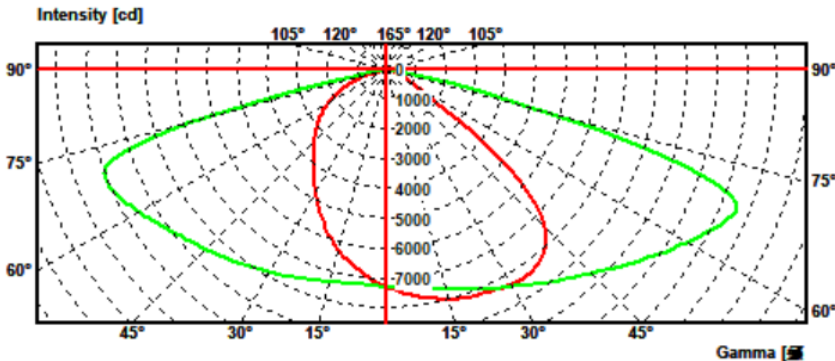
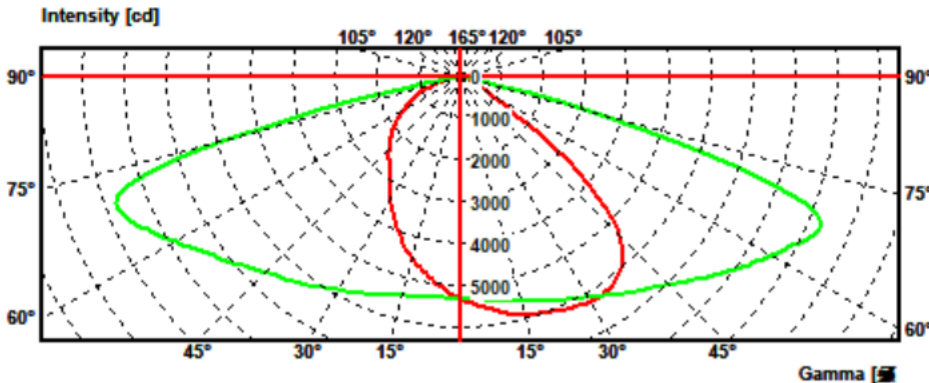
Test Results					
Sample No	Input Voltage (V)	Output voltage (V)		Output current (A)	
		Stabilized	Non- Stabilized (Range)	Stabilized	Non- Stabilized (Range)
LUXE-50	101,0	/	/	0,9489	/
	220,0	/	/	0,95	/
	294,0	/	/	0,9528	/
LUXE-100	101,0	/	/	1,918	/
	220,0	/	/	1,916	/
	294,0	/	/	1,916	/
LUXE-150	101,0	/	/	2,8784	/
	220,0	/	/	2,878	/
	294,0	/	/	2,876	/
LUXE-200	101,0	/	/	3,86	/
	220,0	/	/	3,86	/
	294,0	/	/	3,862	/
LUXE-240	101,0	/	/	4,52	/
	220,0	/	/	4,51	/
	294,0	/	/	4,5	/

Table 3: Test Result of Lumen Maintenance:

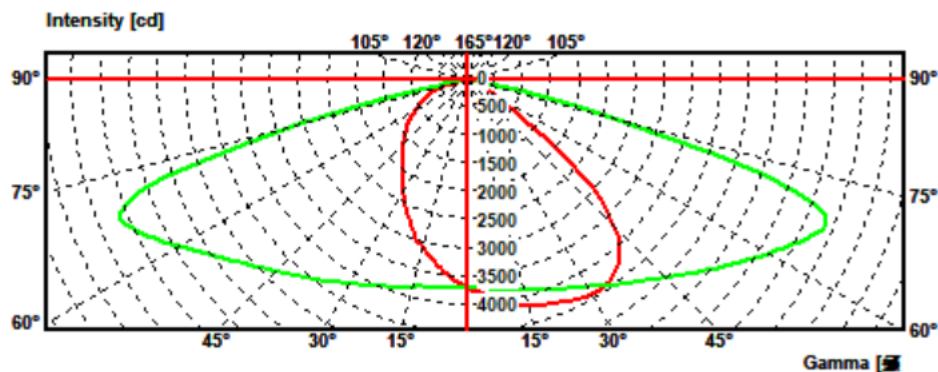
Test Results				
Sample No	Test Voltage (V)	Φ (lm)		Lumen Maintenance
		Initial	6000 H	6000 H
1	/	/	/	/
2	/	/	/	/
3	/	/	/	/
Average / Result	/	/	/	/

Table 4: Luminous Intensity Distribution:

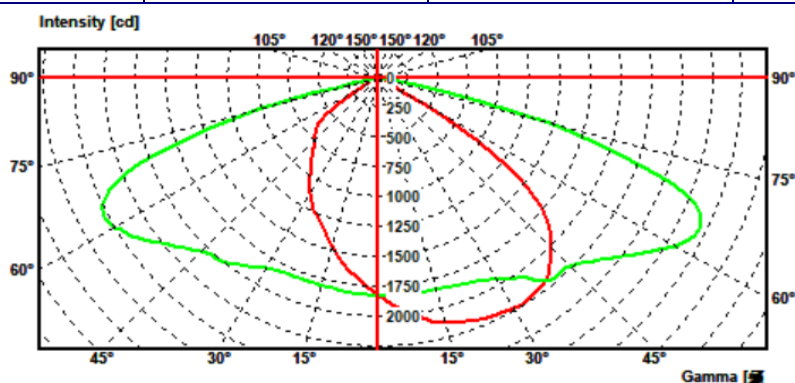
C interval 5° (0°-360°); Gama interval 2,5° (0°-120°):

Model	I _{max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°
LUXE-240	16391,0	118,1	0,39%	0,44%
				
Model	I _{max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°
LUXE-200	14142,1	119,4	0,40%	0,52%
				
Model	I _{max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°
LUXE-150	10230,2	117,6	0,41%	0,45%
				

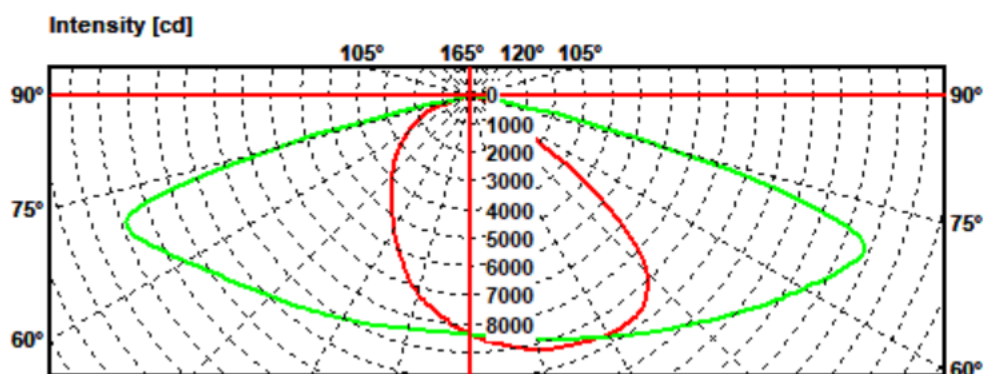
Model	I_{\max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°
LUXE-100	7155,1	115,8	0,45%	0,40%



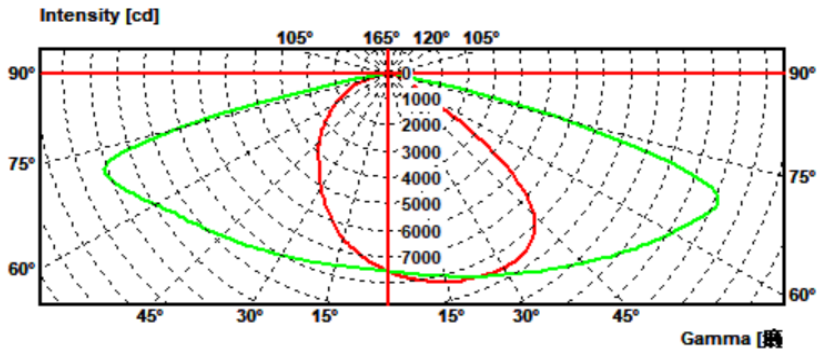
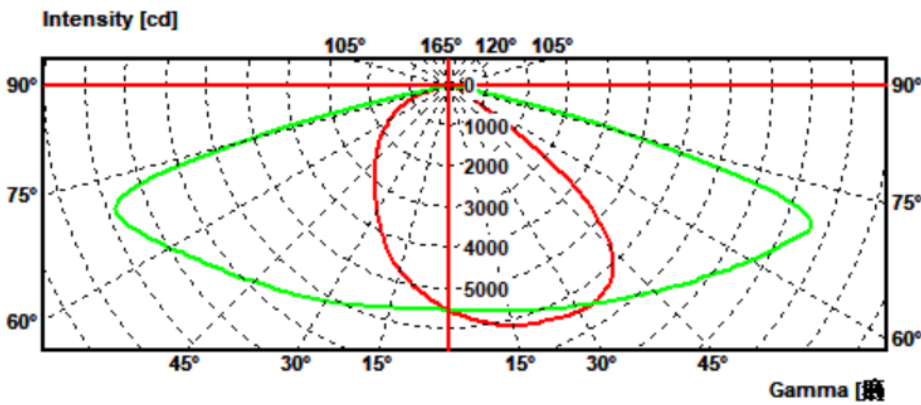
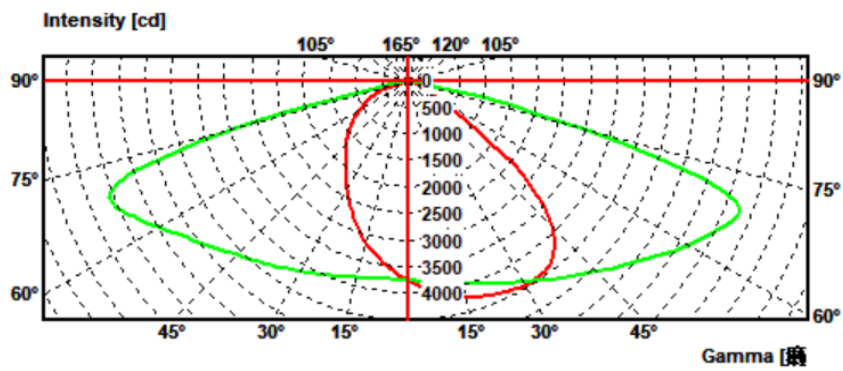
Model	I_{\max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°
LUXE-50	4582,5	117,2	0,44%	0,55%



Model	I_{\max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°
LUXE-240	17380,1	118,9	0,40%	0,46%



Model	I_{\max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°

LUXE-200	14294,5	120,4	0,39%	0,51%
				
Model	I_{max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°
LUXE-150	10665,2	119,0	0,40%	0,32%
				
Model	I_{max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°
LUXE-100	7107,7	117,3	0,32%	0,40%
				
Model	I_{max} (cd)	Beam angle (°)	CDL (%)	
			Above 90°	Above 80° and until 90°
LUXE-50	4694,0	117,6	0,43%	0,54%

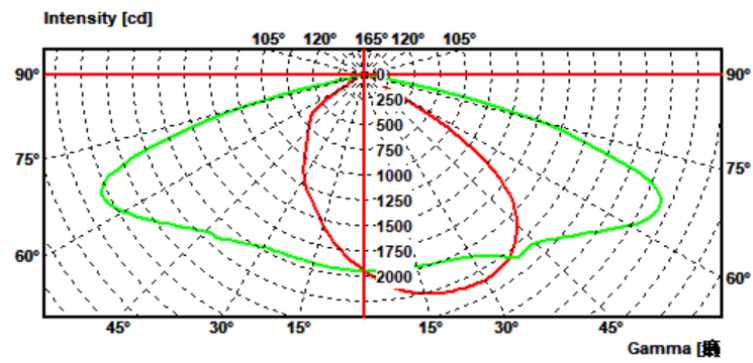


Table 5: In Situ Temperature Measurement Test and Qualification of the electronic control device:-4000K

Type reference	LUXE-240
Lamp source used	Refer to the Test item particulars mentioned on page 2
LM-80 report No,	Refer to the Test item particulars mentioned on page 2
LED driver used.....	Integrated
Mounting position	Reference to the TMP _{LED} point base on the LM 80 report
Supply wattage (W)	219,4
Supply current (A)	1,022
Power factor	0,975
Measured LED drive current (mA)	119,3
Maximum LED current listed on LM-80 report (mA)	300
Maximum temperature listed on LM-80 report (°C)	105
Table: measured temperatures corrected for ta 1 = 25 C and ta 2 = 35 C (only for tc)	
- test 1: rated voltage	220

In-suit Temperature Measurement Point	In-suit Temperature (°C)	
	test 1 (ta 1)	test 1 (ta 2)
TMP _{LED} (Ts)	55,2	--
TMP _{driver} (tc)	55,0	--

Time (t) at which to estimate lumen maintenance (hours):	80000
Lumen maintenance at time (t) (%):	74,89
Reported L70(6k) (hours):	97000




Table 5: In Situ Temperature Measurement Test and Qualification of the electronic control device:-5000K

Type reference	LUXE-240
Lamp source used	Refer to the Test item particulars mentioned on page 2
LM-80 report No,	Refer to the Test item particulars mentioned on page 2
LED driver used.....	Integrated
Mounting position	Reference to the TMP _{LED} point base on the LM 80 report
Supply wattage (W)	220,0
Supply current (A)	1,04
Power factor	0,974
Measured LED drive current (mA)	119,7
Maximum LED current listed on LM-80 report (mA)	300
Maximum temperature listed on LM-80 report (°C)	105
Table: measured temperatures corrected for ta 1 = 25 C and ta 2 = 35 C (only for tc)	
- test 1: rated voltage	220

In-suit Temperature Measurement Point	In-suit Temperature (°C)	
	test 1 (ta 1)	test 1 (ta 2)
TMP _{LED} (T _s)	55,8	--
TMP _{driver} (t _c)	55,2	--

Time (t) at which to estimate lumen maintenance (hours):	80000
Lumen maintenance at time (t) (%):	74,89
Reported L70(6k) (hours):	97000

Appendix III: LED source LM-80 report

Guangdong Meide Testing Technology Co., Ltd.
TESTING
NVLAP LAB CODE:609177-5


TEST REPORT OF ANSI/IES LM-80-15

Approved Method for Measuring Luminous Flux and Color Maintenance of LED Packages,Arrays and Modules

Client..... : Shenzhen Tongyifang Optoelectronic Technology Co., Ltd.

Address..... : No.4 Building,XinLianHe Industrial Park, JinCheng Road, ShaJing Town,
BaoAn District,ShenZhen City

Test Model..... : SE3

Brand Name..... : 

Testing Laboratory.... : Guangdong Meide Testing Technology Co., Ltd.

Address..... : 1st floor, B Area, Jinbaisheng Industrial Park, Headquarters 2 Road,SongshanLake
Hi-tech Industrial Development Zone,Dongguan City,Guangdong Pr., China.


Testing Location..... : As above

Report No..... : C02A18100404L01001

Test Date..... : 2018-11-02 to 2020-11-25

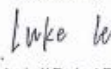
Report Date..... : 2020-12-04

Tested by:




Tim Qian/ Test Engineer

Checked by:




Luke Lei/ Project Engineer

Approved by:



Jessie Li/ Technical Manager



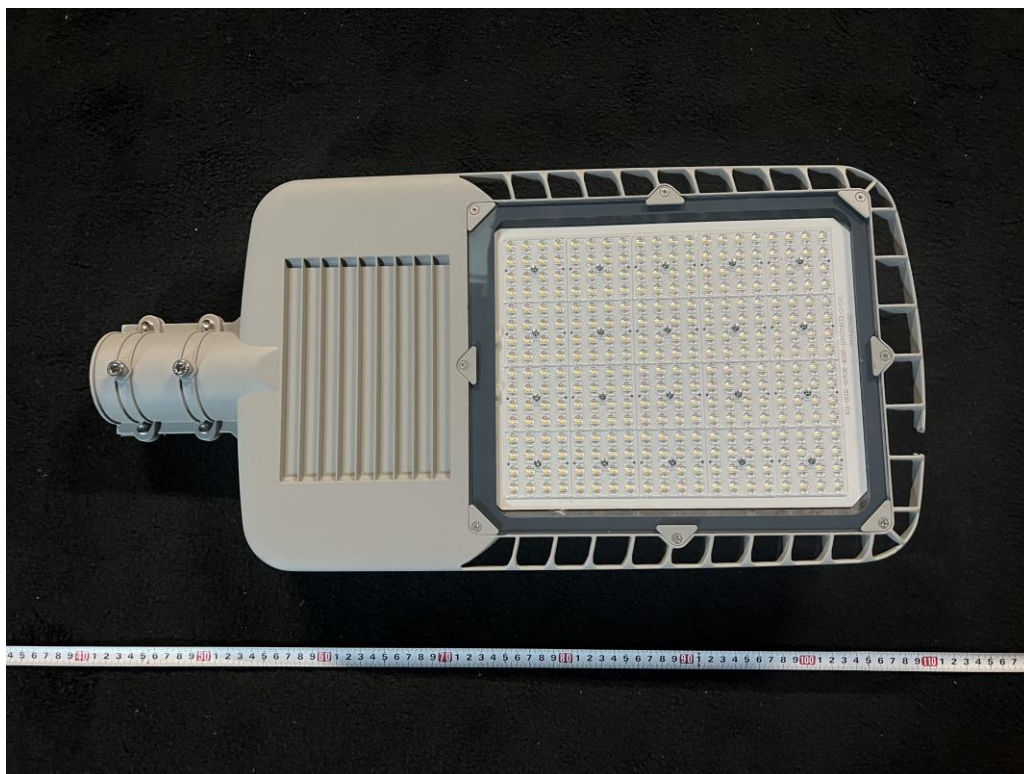
Note 1: The test data was only valid for the test sample(s).This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Guangdong Meide Testing Technology Co., Ltd. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP,NIST, or any agency of the Federal Government.

Note 2: This report does not imply product certification, approval, or endorsement by NVLAP, NIST,or any agency of theFederal Government.

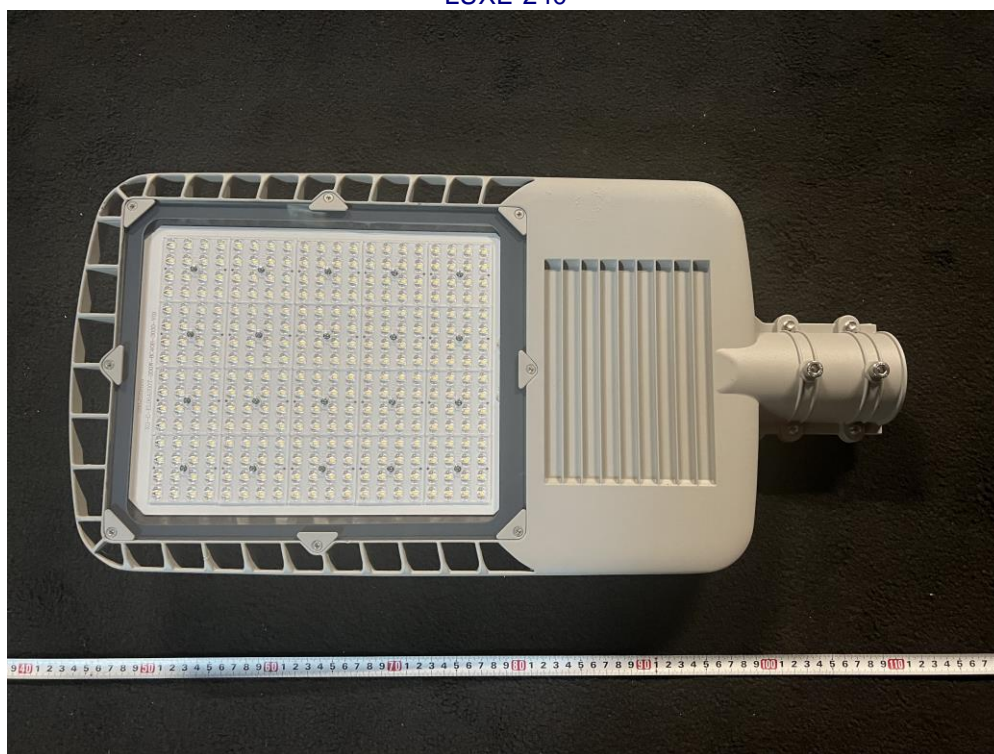
Report No.: C02A18100404L01001 Page 1 of 18

Laboratory:Guangdong Meide Testing Technology Co., Ltd.
Add:1st floor, B Area, Jinbaisheng Industrial Park, Headquarters 2 Road,SongshanLake Hi-techIndustrial DevelopmentZone
Dongguan City,Guangdong Pr., China

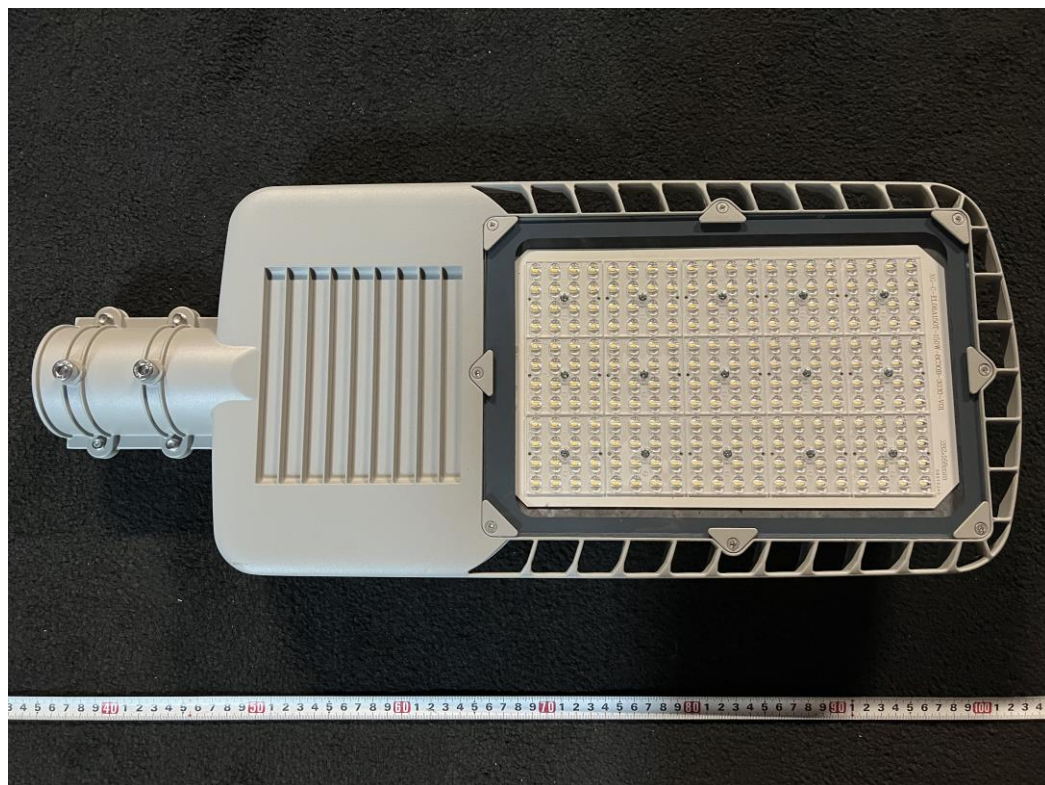
Appendix IV: Photos



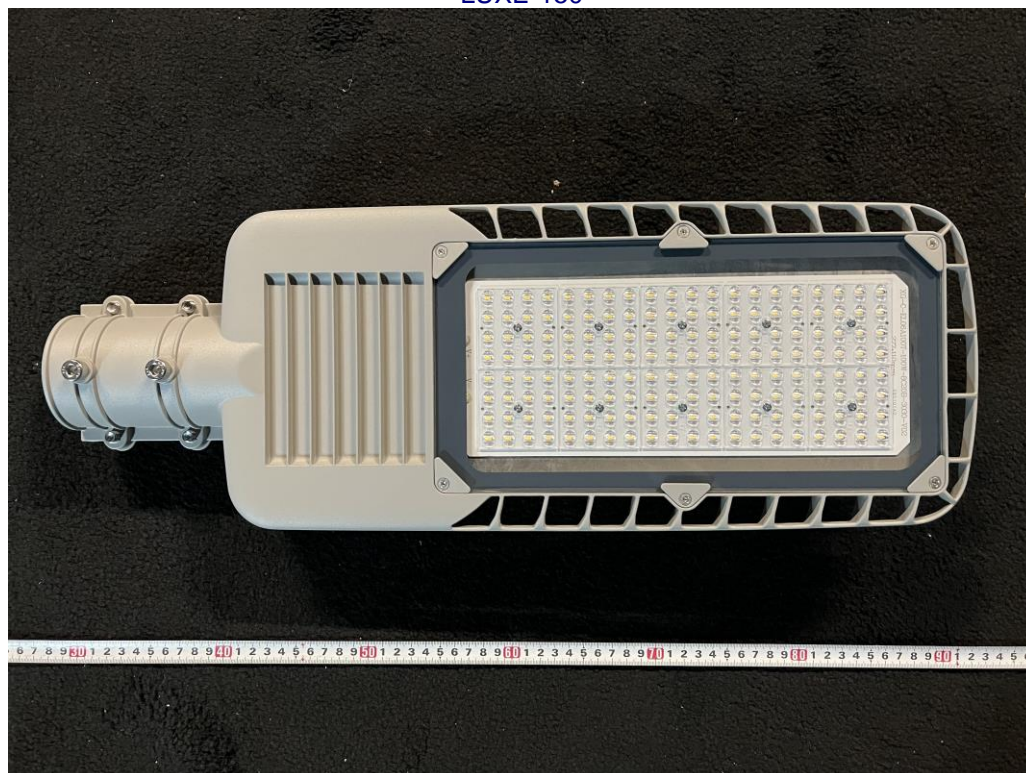
LUXE-240



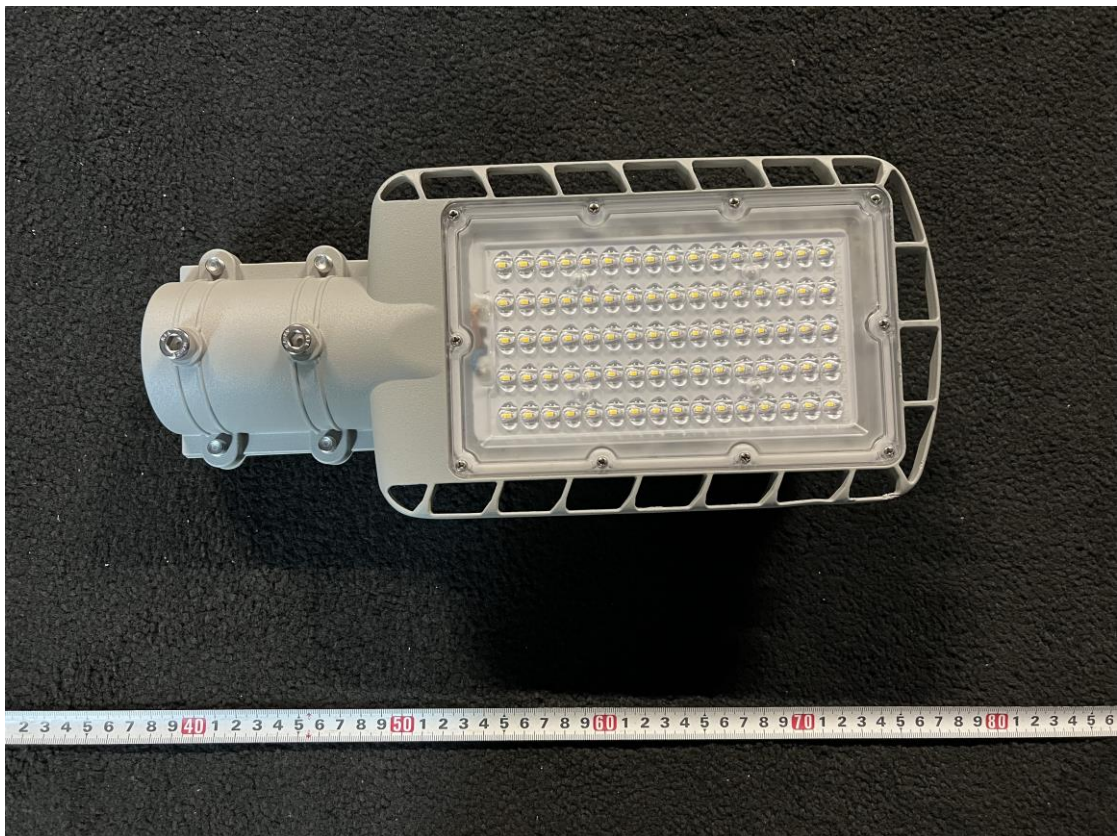
LUXE-200



LUXE-150



LUXE-100



LUXE-50

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