



Technical Report No.: 704022025003-00

Date: 2020-04-15

Client: Hangzhou ZGSM Technology Co., Ltd.  
1188 Jinxi Rd.S., Linglong Industrial Zone  
311301 Linan, Hangzhou, Zhejiang Prov.  
PEOPLE'S REPUBLIC OF CHINA.

Manufacturing place: Hangzhou ZGSM Technology Co., Ltd.  
1188 Jinxi Rd.S., Linglong Industrial Zone  
311301 Linan, Hangzhou, Zhejiang Prov.  
PEOPLE'S REPUBLIC OF CHINA.

Product: LED Street Light  
ZGSM-LDXXXKmini2, ZGSM-LDXXXKmini2N  
ZGSM-LDXXXKmini2+, ZGSM-LDXXXKmini2+N  
Test subject: Type: XXX" can be 050 to 130, with a step of 1, represents  
the rated power of product;  
"N" represents with photocontrol

Test specification: IK10 test according to  
EN 60598-1:2015+A1:2018  
EN 60598-2-3:2003+A1:2011 Clause 3  
IEC 60598-1:2014  
IEC 60598-1:2014+A1:2017  
IEC 60598-2-3:2002 Clause 3  
IEC 60598-2-3:2002+A1:2011 Clause 3  
IEC/EN 62262:2002 and IEC/EN 60068-2-75:2014  
Static load test according to  
EN 60598-1:2015+A1:2018  
EN 60598-2-3:2003+A1:2011  
IEC 60598-1:2014  
IEC 60598-1:2014+A1:2017  
IEC 60598-2-3:2002  
IEC 60598-2-3:2002+A1:2011

Purpose of examination: • Test according to the test specification

Test result: The test result show that the presented product is in compliance  
with the specific requirements.

*Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details please see testing and certification regulation, chapter A-3.4.*

# Technical Report



Product Service

## 1. Description of the test subject

### 1.1 Function

Manufacturer's specification for intended use: LED Street Light

Manufacturer's specification for predictive use: N/A

### 1.2 Consideration of the foreseeable use

- Not applicable
- Covered through the applied standard
- Covered by the following comment
- Covered by attached risk analysis

### 1.3 Technical Data

Rated Voltage	:	100-240V~
Rated Frequency	:	50/60Hz
Protection Class	:	Class I
Supply connection	:	Terminal

## 2. Order

### 2.1 Date of Purchase Order, Customer's Reference

2020-02-25

### 2.2 Receipt of Test Sample, Condition, Location

2020-02-25

Normal condition

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch  
No. 1999, Duhui Road, Shanghai, 201108, P. R. China

## 2.3 Date of Testing

2020-02-25 to 2020-04-15

## 2.4 Location of Testing

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch  
No. 1999, Duhui Road, Shanghai, 201108, P. R. China

## 2.5 Points of Non-Compliance or Exceptions of the Test Procedure

None

## 3. Test Results

### 3.1 Positive Test Results

- EN 60598-1
- EN 60598-2-3
- EN 62262
- EN 60068-2-75

### 3.2 Points of Non-Compliance according to the test specification

None

## 4. Remark

The products are LED street light. All the models are in the similar construction with different dimension and shapes.

IK 10 test is performed on ZGSM-LD130Kmini2N.

**5. Mechanical Impact Test (IK10):**

Ambient Temperature: 25.0°C

Relative Humidity: 53%RH.

**Test Methods/Specification:**

Test methods: According to IEC 62262:2002 and IEC 60068-2-75:2014.

Test condition: According to the client's requirement, IK 10 test for enclosure

Impact energy of IK10 is shown as below:

IK code	IK00	IK01	IK02	IK03	IK04	IK05	IK06	IK07	IK08	IK09	IK10
Impact energy, J	*	0,14	0,2	0,35	0,5	0,7	1	2	5	10	20
* Not protected according to this standard.											
NOTE 1 When higher impact energy is required, the value of 50 J is recommended.											
NOTE 2 A characteristic group numeral of two figures has been chosen to avoid confusion with some national standards which used a single numeral for a specific impact energy.											

Test equipment: Vertical hammer type impact tester (IEC 60068-2-75: 2014)

Impact energy: IK10=20J

Operating mode: Power off

Criteria after impact test

Visual inspection: Check if breakage, crack, and separation occur.



**6. Static load test:**

Test procedure according to EN 60598-2-3:2003+A1:2011, clause 3.6.3.1

**3.6.3.1 Static load test for mast arm or post top mounted luminaires**

The luminaire is mounted in such a way that most critical surface is loaded. The most critical surface is determined by calculating the highest value of Cd\_S

where:

The drag coefficient depends on the shape of the surface. For luminaires for which the Cd is not measured the value of 1,2 shall be taken.

NOTE 1 See Annex A for measurement of Cd.

The means of attachment shall be secured in accordance with the manufacturer's instructions.

A constant evenly distributed load is applied for 10 min on the most critical surface.

NOTE 2 See Figure 1 for methods of equal distribution of the load. In cases where bags are used, these can be filled with sand, lead shot or small balls.

Cd is the drag coefficient;

S is the area of the surface to be loaded (m<sup>2</sup>).

The load shall be equal to:

$$F = 1/2 Rh \times S \times Cd \times V^2 \text{ (N)}$$

where:

Rh is equal to 1,225 kg/ m<sup>3</sup> (air volumic mass);

V is the wind speed (m/s).

The wind speeds relevant to the mounting height of luminaires shall be:

V = 45 m/s (163 km/h) for heights up to 8 m;

V = 52 m/s (188 km/h) for heights between 8 m and 15 m;

V = 57 m/s (205 km/h) for heights of more than 15 m.

3.6.3.1 (-)	Static load test		P
	- drag coefficient.....:	1,2	P
	- loaded area (m <sup>2</sup> ).....:	0,12	P
	- used load (N).....:	291,1	P
	- measured deformation (cm/m).....:	0 cm/m (Max.2 cm/m)	P
	- no rotation		P

Test result Pass

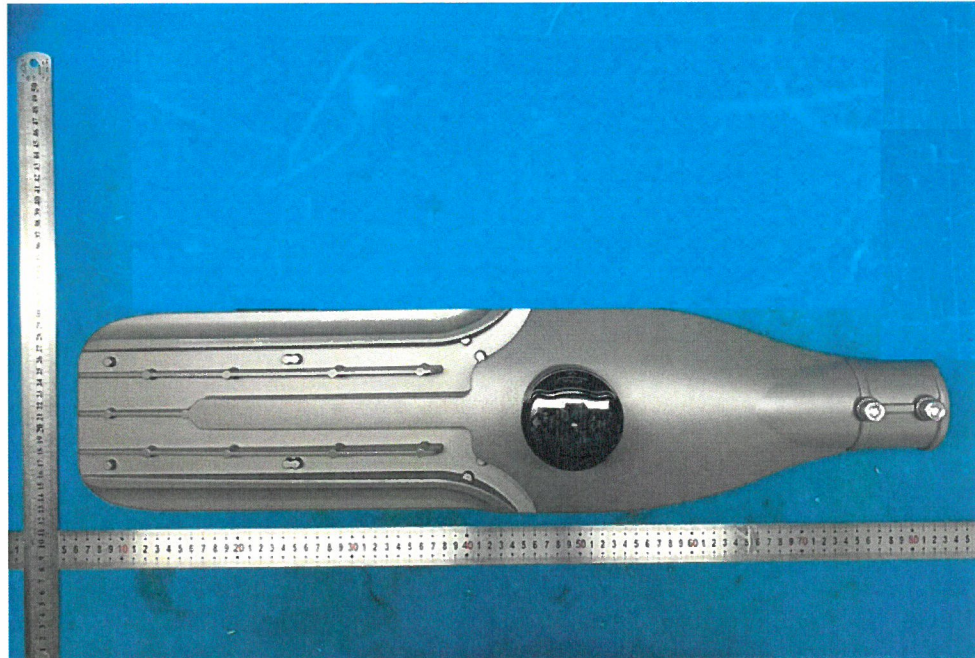
Note: test sample with ZGSM-LD130Kmini2N which has largest size.

7. Documentation

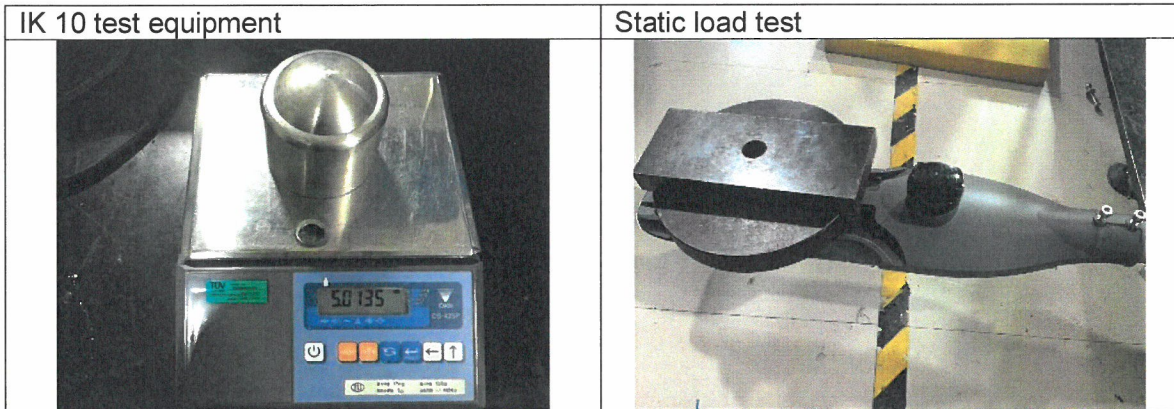
Photo documentation:



Over view of ZGSM-LD130Kmini2N



Over view of ZGSM-LD130Kmini2N



**TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch**

Tested by:

Lichen WANG

*Project Handler*

Approved by:

Xudong ZANG

*Designated Reviewer*

