

# TEST REPORT

**Applicant:** SHENZHEN NOBLE OPTO CO., LTD.  
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**Report Number:** POCE18010305BRS  
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**Report on the submitted sample said to be:**

**Sample name:** 200mm High Power Traffic Light  
**Trade Name:** N/A  
**Specimen Model:** NBVB213HP, NBAL213HP-V12, NBPS212HP-V12, NBVB212HP-V12, NBPS200HP-V12, NBAL200HP-V12, NBVB200HP-R, NBVB200HP-A, NBVB200HP-G  
**Manufacturer:** SHENZHEN NOBLE OPTO CO., LTD.  
**Address:** Building 5F, Mingjinhai Industry Park, Shiyan Town, Bao'an District, Shenzhen, China, 518108  
**Date EUT received:** Jan. 03, 2018  
**Date test effected:** Jan. 03, 2018- Jan. 08, 2018  
**Types of Test:** Water Penetration And Dust  
Dry Heat  
Cold  
Damp Heat Cyclic

\*\*\*\*\* FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S) \*\*\*\*\*

Signed for and on behalf of  
POCE Ltd

Prepared by(Engineer) :

Approvedr(Manager) :



## SUMMARY

|                                   |   |
|-----------------------------------|---|
| 1. SPECIMEN DESCRIPTION .....     | 3 |
| 2. REFERENCE DOCUMENTS .....      | 4 |
| 3. ENVIRONMENTAL CONDITIONS ..... | 4 |
| 4. TEST APPARATUS .....           | 5 |
| 5. TEST CONDITIONS .....          | 5 |
| Water Penetration And Dust .....  | 5 |
| Dry Heat .....                    | 5 |
| Cold .....                        | 6 |
| Damp Heat Cyclic .....            | 6 |
| 6. TEST RESULTS .....             | 7 |
| 7. Photos .....                   | 8 |

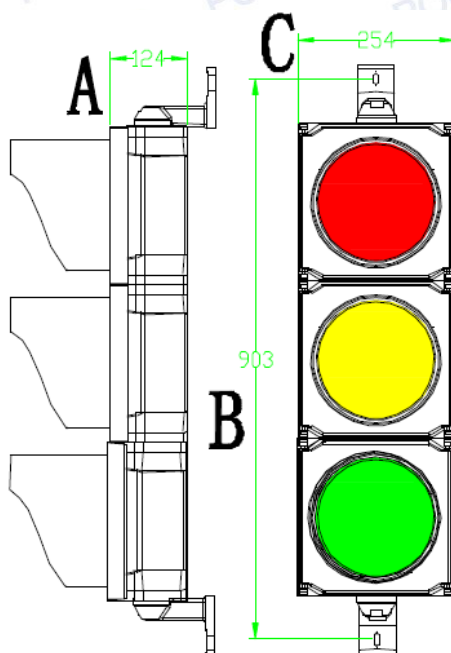
## 1. Specimen description

The 200 mm diameter traffic lights samples sampled by Shenzhen POCE technology Co., Ltd. in Jan. 03, 2018 and delivered to the laboratories. Are composed of a black polycarbonate support, inside which a luminous matrix made by LEDs is mounted. The front part has a closing door on which a transparent lens in polycarbonate is mounted. The colour of the lantern is determined by LED light emission. The door is provided with support for mounting the visor. The main technical characteristics are stated in the following table

| Signal head | Sign      | Color  | No. of LEDs | Voltage   | Outside Dimensions |
|-------------|-----------|--------|-------------|-----------|--------------------|
| NBVB213HP   | Full Ball | Red    | 3           | 85-275Vac | 903 x 254 x 124 mm |
|             |           | Yellow | 3           |           |                    |
|             |           | Green  | 3           |           |                    |

### Signal head NBVB213HP - LEDs characteristics

| Color  | Manufacture/<br>Trademark           | Frequency (Hz) | Voltage[V] | Power[W] |
|--------|-------------------------------------|----------------|------------|----------|
| Red    | SHENZHEN<br>NOBLE OPTO<br>CO., LTD. | 45-65Hz        | 85-275Vac  | >8 W     |
| Yellow | SHENZHEN<br>NOBLE OPTO<br>CO., LTD. | 45-65Hz        | 85-275Vac  | >8 W     |
| Green  | SHENZHEN<br>NOBLE OPTO<br>CO., LTD. | 45-65Hz        | 85-275Vac  | >8 W     |



| mm       | A   | B   | C   |
|----------|-----|-----|-----|
| 2 lights | 124 | 649 | 254 |
| 3 lights | 124 | 903 | 254 |

Traffic Signal Light drawings of model NBVB213HP

## 2. Reference documents

The test was carried out in accordance with the requirements of the following documents:

- \* European EN 12368:2015 "Traffic control equipment- Signal head";
- \* Italian standard EN 60529:1997 "Degrees of protection provided by enclosures (IP code);
- \* Italian standard EN 60068-2-2:2008 "Environmental testing part 2-2: Tests-Test B: Dry heat";
- \* Italian standard EN 60068-2-1:2007 "Environmental testing Part 2-1: Test-Test A: Cold";
- \* Italian standard EN 60068-2-30:2010 "Environmental testing Part 2-30: Tests-Test Db: Damp heat cyclic(12+12h cycle)";

## 3. Environmental conditions

Temperature:  $23 \pm 3^{\circ}\text{C}$

Relative humidity:  $50 \pm 10\%$

Pressure:  $1010 \pm 20\text{hPa}$

## 4. Test apparatus

- Dust chamber BIEMME TP800.S/N RM081;
- Jet-nozzle (=6.3mm), S/N RM134;
- Flowmeter KEY INSTRUMENTS FR5L60PL. S/N RM131
- analogic timer HEUER, S/N RM084;
- MINIDATALOGGER DELATOHM HD602.S/N RM243;
- Climatic chamber ANGELANTION UC10-40/70 TWIN(Side B), S/N RM084

## 5. Test conditions

### 5.1 Water penetration and dust

The EUTs, placed into dust chamber as shown in the photos below. Have been exposed to talcum Powder in suspension (particle size <50µm). The amount of talcum powder used has been 3kg per Cubic metre of the chamber volume. The period of the test has been 8 hours.

After then. The EUTs have been subjected to water spray. Made by spraying the enclosure from all practicable directions from a distance between 2 and 3 meters with a stream of water (delivery rate 12.5l/min) from a nozzle as with internal diameter of 6.3mm. The test duration has been 3 minutes. The following photos show the samples during the test.

### 5.2 Dry heat

The Euts have been placed into the climatic chamber. As shown in the following photo. And subjected to the steps described in the table below in accordance to UNI EN 12368 Table 11 "Temperature range"- Class A and to EN 60068-2-2 "Dry heat- test Bb".

| Phase | Description                                   | Time | Operating status | Note |
|-------|-----------------------------------------------|------|------------------|------|
| 1     | Transition from ambient (25°C to T=60°C )     | 45   | Operating        |      |
| 2     | Isotherm at T=60°C                            | 960  | Operating        |      |
| 3     | Transition from T=60°C to ambient temperature | 45   | Operating        |      |
| 4     | Isotherm at ambient temperature               | 60   | Operating        |      |

The graph below shows the recording of temperature values acquired during the whole test by means of the minidatalogger with 1 minute interval.

### 5.3 Cold

The EUTs, in the same setup of the last test. Have been subjected to the following steps in accordance to UNI EN 12368 tabel 11 Temperature range"-Class A and to EN 60068-2-1; Cold

| Phase | Description                                     | Time | Operating status | Note                       |
|-------|-------------------------------------------------|------|------------------|----------------------------|
| 1     | Transition from ambient(25°C) to T=-15°C        | 30   | Not Operating    |                            |
| 2     | Isotherm at T=-15°C                             | 960  | Not Operating    | Operating in the last hour |
| 3     | Transition from T= -15°C to ambient temperature | 30   | Not Operating    |                            |
| 4     | Isotherm at ambient temperature                 | 60   | Not Operating    |                            |

The graph below shows the recording of temperature values acquired during the whole test by means of the minidatalogger with 1 minute interval

### 5.4 Damp heat cyclic

The EUTs, In the same setup of the last test, have been subjected to the following steps in accordance to UNI EN 12368 Table 11 Temperature range-Class A and to EN 60068-2-30 'Damp heat , cyclic -test Db- variant 2'

| Phase | Description                                    | Time | Operating status | Note                         |
|-------|------------------------------------------------|------|------------------|------------------------------|
| 1     | Transition from ambient(25°C to T=40°C         | 180  | Not Operating    |                              |
| 2     | Isotherm at T=40°C                             | 540  | Not Operating    |                              |
| 3     | Transition from T= 40°C to ambient temperature | 360  | Not Operating    | Operating in the last 1 hour |
| 4     | Isotherm at ambient temperature                | 360  | Not Operating    |                              |

## 6. Test Results

The results of the classification for the signal heads, under test in accordance with standard UNIEN 12368:2015 are given in the following tables.

|                                                             |                                      |             |
|-------------------------------------------------------------|--------------------------------------|-------------|
| EUT                                                         | 200mm full ball traffic signal light |             |
| Test                                                        | Performance parameter                | Requirement |
| Ingress<br>(water penetration and dust)                     | IP65 (module)<br>IP55 ( aspects )    | Pass        |
| Temperature range<br>(Dry heat, cold , and damp heat cylic) | Class A                              | Pass        |

## Photos

### Photo 1

View:

- ☒ front  
☐ rear  
☐ right side  
☐ left side  
☐ top  
☐ bottom  
☐ internal



### Photo 2

View:

- ☒ front  
☐ rear  
☐ right side  
☐ left side  
☐ top  
☐ bottom  
☐ internal



### **Photo 3**

View:

- ☐ front  
☐ rear  
☐ right side  
☐ left side  
☒ top  
☐ bottom  
☐ internal



### **Photo 4**

View:

- ☐ front  
☒ rear  
☐ right side  
☐ left side  
☐ top  
☐ bottom  
☐ internal



----- End of Report -----