

TEST REPORT

Applicant: SHENZHEN NOBLE OPTO CO., LTD.
Address: Building 5F, Mingjinhai Industry Park, Shiyan Town, Bao'an District, Shenzhen, China, 518108
Report Number: POCE18010303ARS
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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: Random vibration test

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

Signed for and on behalf of
POCE Ltd

Prepared by(Engineer) :

Approvedr(Manager) :



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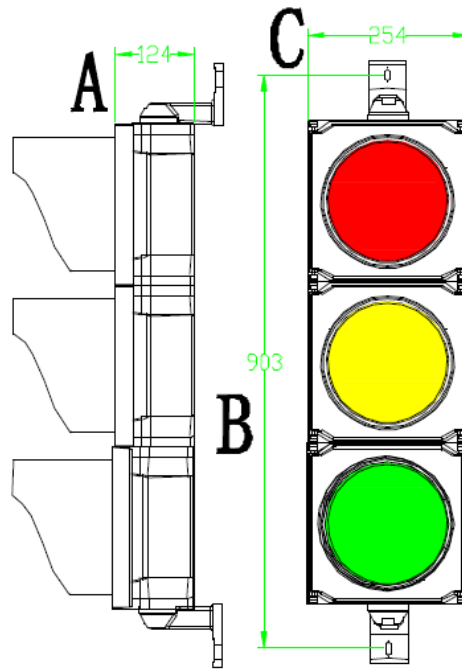
1. Specimen description

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

1. The test was carried out in accordance with the requirements of the following documents:
2. Standard EN 12368:2015 "Traffic control equipment- Signal head";
3. Standard EN 60068-2-64:2008 "Environmental testing. Tests. Test Fh. Vibration, broadband random and guidance"

3. Enviromental conditions

Temperature: $20 \pm 1^{\circ}\text{C}$

Realative humidity: $50 \pm 10\%$

Pressure: $1000 \pm 30\text{mbar}$

4. Test apparatus

The following equipment was used to carry out the test:

Spectral Dynamics SD-10-240 shaker s/n DO-911-222

Endevco 133conditioner, in-house identification code RM-059

Spectral Dynamics SA-10 power amplifier s/n Do-911-222 with Universal Dynamics control software

Endevco mod.2229C Accelerometer s/n 11115. Cal. Due 9th jul. 2017

Endeveo mod.2229C Accelerometer s/n 11839. Cal. Due 23th Feb 2017

Scheduled checks on the units:

Visual inspection at the end of each vibration cycle, in order to potential electrical malfunctionings or mechanical defects or damages.

5. Test conditions

The units under test have been subjected to random vibration cycles along each of the three main axes; the parameters utilized are given in table 9 ("Construction integrity") of the reference standard #1:

Table 9 — Constructional integrity

Random vibration	Frequency range: 10 Hz to 200 Hz
EN 60068-2-64	ASD levels: 0,02 g ² /Hz (10 Hz to 50 Hz) 0,02 g ² /Hz (50 Hz to 200 Hz with slope 3 dB/octave).
Test Fh, Duration 2 h in each of 3 axes	Overall RMS acceleration 1,2 g

Each signal light, operating, has been fastened with screws. By means of the supplied L-shape brackets, to steel beam, integral to the vibrating test bench.

For the control of the vibration stresses two acclerometers have been used(One for NBVB213HP vertical axis vibration). Fixed to the to the shaker's integral support.

Hereafter photos of the layout for the tests along the three axes for each tested signal and a ASD(G²/Hz)/frequency(Hz) plot recorded during the tests:

6. Test Results :

Following completion of the tests along each of the three axes, visual inspections of the signal heads three axes. Visual inspections of the signal heads revealed no malfunctioning and no mechanical fault or damage.

Vibration test sequence

Signal head model	Test axis	Date
NBVB213HP	Vertical	Jan. 06, 2018
NBVB213HP	Longitudinal	Jan. 06, 2018
NBVB213HP	Transversal	Jan. 06, 2018

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 -----