

## In Situ Temperature Measurement Test Report

For

**SHENZHEN SUNPER OPTO CO.,LTD**

**(Brand Name: SUNPER)**

5/F,BLOK C,SANMIN INDUSTRIAL PARK,SHIYAN STREET,  
BAO'AN DISTRICT,SHENZHEN 518108,GUANGDONG,CHINA

**High-Bay Luminaires for Commercial and Industrial buildings**

Model name(s): SP-HB-200WA

Representative (Tested) Model:SP-HB-200WA(4000K)

Model Different: All construction and rating are the same, except CCT

Test & Report By:

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Engineer: Sean Zhuo

Date: Dec.10,2014

Review By:

*Tommy Liang*

Manager: Tommy Liang

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

**Laboratory: Standard-Tech Co. Ltd Testing Center**

**NVLAP CODE: 201011-0**

Report Format Number STD/QR4918-A/0

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## Table of Contents

1 General	3
1.1 Product Information	3
1.2 Standards or methods	4
1.3 Equipment list	4
2 Test conducted and method	4
2.1 Ambient Condition	4
2.2 Temperature Stabilization	4
2.3 Thermocouples	5
2.4 Thermocouples contact	5
3 Test Results	6
3.1 Data:	6
3.3 Test Photo:	6

# 1 General

## 1.1 Product Information

Brand Name	SUNPER
Model Number	SP-HB-200WA
Luminaire Type	High-Bay Luminaires for Commercial and Industrial buildings
Nominal Power	200 W
Rated Initial Lamp Lumen	--
Declared CCT	4000K,4500K,5000K,5700K
[Luminaire Aperture] [Size]	--
LED Manufacturer	CREE
LED Model	Xlamp XT-E
Sample Receipt Date	Dec.08,2014
Sample Number	141129-5

**Photo**



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## 1.2 Standards or methods

The following standards are partly or totally used or referenced for test:

No.	Name
ANSI/UL 1598:2008	Luminaires

## 1.3 Equipment list

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
PF210	Power Meter	2014-07-01	2015-06-30
ST-R-181A	Temperature Tester	2014-07-01	2015-06-30

# 2 Test conducted and method

## 2.1 Ambient Condition

Test was conducted in an ambient temperature of  $25 \pm 5^\circ\text{C}$ . Ambient temperature variations above or below  $25^\circ\text{C}$  was subtracted from or added to temperatures recorded at points on the luminaire.

The ambient temperature was measured by a thermocouple which was immersed in 15ml of mineral oil in a glass container.

## 2.2 Temperature Stabilization

Temperatures were measured after they have stabilized when the test has been running for a minimum of 7.5 hours, or the test has been running for a minimum of 3 hours and three successive reading taken at 15 minutes intervals are with  $1^\circ\text{C}$  of another and are not rising.

## 2.3 Thermocouples

Type J thermocouple was used for temperature measurement. The thermocouple was 0.05mm<sup>2</sup>(30AWG), and complied with the requirements specified in ASTM MNL 12 and limits of error specified in NIST ITS 90 and ISA MC96.1.

## 2.4 Thermocouples contact

Thermocouples were in contact with the TMP LED location described in LM-80 test report. In order to gain the maximum temperature, if appropriate, more than one thermocouple were contact in these locations. For details information, please refer to clause 3.3 for the photo of thermocouple contact.

### 3 Test Results

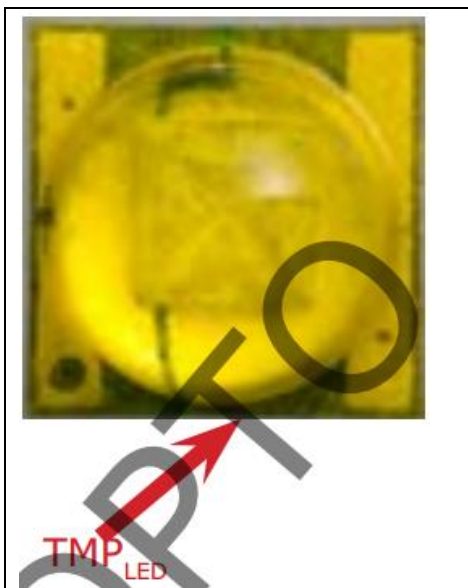
Test date	2014-12-09	Test Ambient	25.1 °C
Sample No.		LED Package Model	
141129-5		Xlamp XT-E	
LED driver of Each Lamp	Output voltage V	Measured LED working current (Max.) mA	
1	33.4	903.2	

#### 3.1 Data:

Input Vol.	120.1 V	Input Current	1.7351A	Input Wattage	206.7W	Temperature stabilization time:	500 min	
No.	Temperature (°C)		No.	Temperature (°C)		No.	Temperature (°C)	
	Measured	Corrected at 25°C		Measured	Corrected at 25°C		Measured	Corrected at 25°C
1	78.8	78.7	3	78.7	78.6	5	80.2	80.1
2	79.0	78.9	4	79.2	79.1	6	79.0	78.9
The highest in-situ measured temperature LED is 80.1°C								

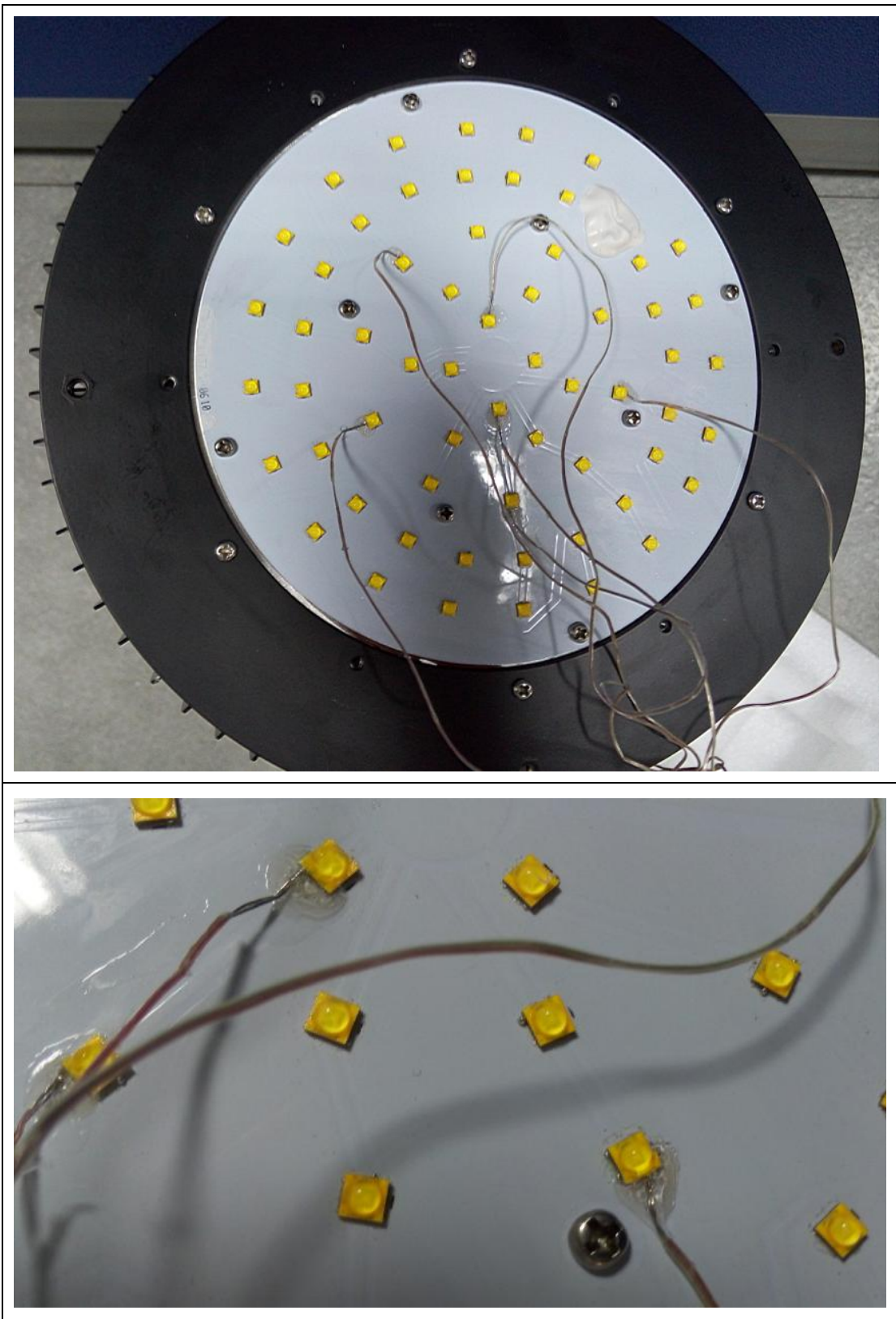
#### 3.2 Test Photo:

Ts Position:





Thermocouple Location on Temperature Measurement Point (TMP):



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Table 1: Report at each LM-80 Test Condition					
Description of LED Light Source Tested (manufacturer, model, catalog number)		CREE,Xlamp XT-E			
Test Condition 1 - 55°C Case Temp		Test Condition 2 - 85°C Case Temp		Test Condition 3 - 105°C Case Temp	
Sample size	25	Sample size	25	Sample size	25
Number of failures	0	Number of failures	0	Number of failures	0
DUT drive current used in the test (mA)	1000	DUT drive current used in the test (mA)	1000	DUT drive current used in the test (mA)	1000
Test duration (hours)	10,000	Test duration (hours)	10,000	Test duration (hours)	10,000
Test duration used for projection (hour to hour)	5,040 - 11,592	Test duration used for projection (hour to hour)	5,040 - 11,592	Test duration used for projection (hour to hour)	5,040 - 11,592
Tested case temperature (°C)	55	Tested case temperature (°C)	85	Tested case temperature (°C)	105
$\alpha$	4.720E-07	$\alpha$	6.895E-07	$\alpha$	-2.478E-07
B	0.990	B	0.989	B	0.956
Calculated L70(10k) (hours)	735,000	Calculated L70(10k) (hours)	501,000	Calculated L70(10k) (hours)	(1,258,000)
Reported L70(10k) (hours)	>60000	Reported L70(10k) (hours)	>60000	Reported L70(10k) (hours)	(1,258,000)

Table 2: Interpolation Report (projection based on <i>in-situ</i> temperature entered)	
$T_{s,1}$ (°C)	55.00
$T_{s,1}$ (K)	328.15
$\alpha_1$	4.720E-07
$B_1$	0.990
$T_{s,2}$ (°C)	85.00
$T_{s,2}$ (K)	358.15
$\alpha_2$	6.895E-07
$B_2$	0.989
$E_a/k_b$	1.48E+03
A	4.349E-05
$B_0$	0.989
$T_{s,i}$ (°C)	80.70
$T_{s,i}$ (K)	353.85
$\alpha_i$	6.556E-07
Projected L70(10k) at 80.7°C (hours)	528,000
Reported L70(10k) at 80.7°C (hours)	>60000

\*\*\*\*\* END OF THE TEST REPORT\*\*\*\*\*

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