

## LM-79-08 Test Report

For

### ELEC-TECH INTERNATIONAL CO LTD

No.1 Jinfeng Road, Tangjiawan Town, Xiangzhou District, Zhuhai City, Guangdong  
Province, P.R. China 519085

### LED High Bay Light

Model name(s):  
502284XX

Representative (Tested) Model:  
50228461

**Model Difference:** XX=61-70 intends CCT is 5000K.

Prepare By:



Engineer: Leo Liu

Date: 2017-06-13

Review By:



Technical Lead: Vincent Yuan

Date: 2017-06-13

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

**Product Information:**

Client Name:	ELEC-TECH INTERNATIONAL CO LTD
Brand Name:	ETI
Model Number:	502284XX (XX=61-70)
Product type:	High Bay Luminaires for Commercial and Industrial Buildings
Rating Input:	AC120-277V, 50/ 60Hz, 115W
Declared CCT:	5000K
Declared Light output:	15000 lm
LED Manufacturer:	Samsung
LED Model:	SPMWH1228
LED Quantity:	636 pcs
Forward current of LED Chip:	120mA
Date of Receipt Samples:	2017-06-13
Quantity of Receipt Samples:	2
Sample Number:	170613002-S1

**Laboratory Information:**

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1 <sup>st</sup> North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	Neil_ntc@163.com

**Report Information**

Issued Date of Test Report:	2017-06-13
Revised Date of Test Report:	N/A
Test Report No.:	NTCR17060021
Remark (If applicable)	N/A

<b>Test Specifications:</b>	
Date of Test	2017-06-13
Test item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. THD and PF
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Color Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry

<b>Test Methods</b>
<p><b>1. Photometric and Electrical measurements – Light Distribution Method:</b></p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at <math>25^{\circ}\text{C} \pm 1^{\circ}\text{C}</math>, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at <math>1^{\circ}</math> vertical intervals and <math>22.5^{\circ}</math> Vertical intervals.</p>
<p><b>2. Photometric and Electrical Measurements – Integrating Sphere Method:</b></p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at <math>25^{\circ}\text{C} \pm 1^{\circ}\text{C}</math>. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at least 5 nm intervals over the range of 380 to 780 nm.</p>
<p><b>3. THD and PF measurements</b></p> <p>The sample was tested according to the ANSI C82.77-2002, the sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.</p>

**Integrating Sphere Test Results**

**Test Condition:**

Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time
25.1	40	Face Down	90	25

**Electrical Data:**

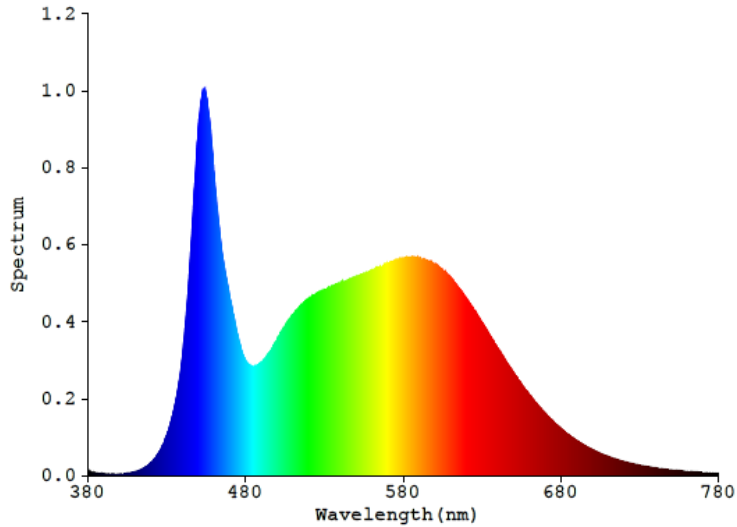
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.9448	112.1	0.9881

**Color Data:**

Parameter	Result
CCT (K)	5281
Color Rendering Index (CRI)	85.9
R9	20
Chromaticity, x	0.3376
Chromaticity, y	0.3449
Chromaticity u'	0.2089
Chromaticity v'	0.4802
Duv	-0.00027

Special Color Rendering			
R1	85	R9	20
R2	93	R10	81
R3	95	R11	84
R4	84	R12	65
R5	86	R13	88
R6	88	R14	98
R7	87	R15	81
R8	70	-	-

**Spectrum Diagram:**



**Goniophotometer Test Results:**

**Test Condition:**

Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time
25.1	43	Face Down	90	25

**Electrical Data:**

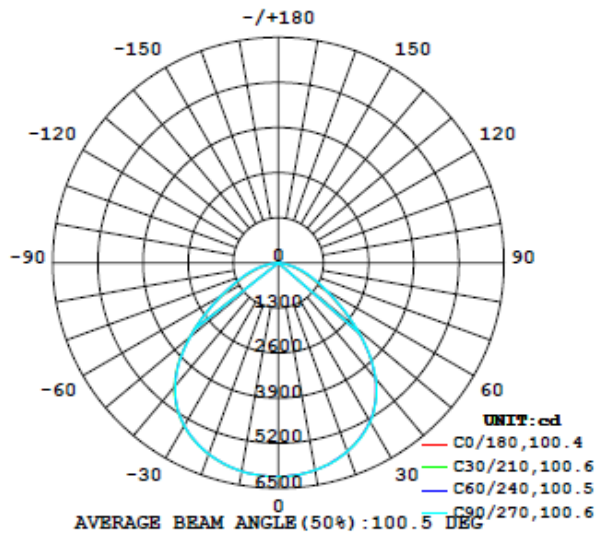
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.9448	112.1	0.9881

**Goniophotometer Data:**

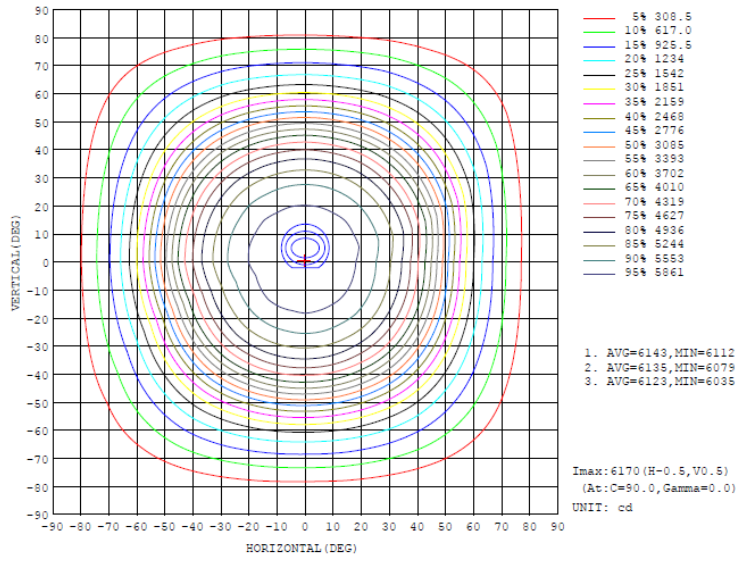
Parameter	Result
Total Luminous (lm)	15024
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	134.08
Zonal Lumens Distribution (20-50°)	55.3%
Beam Angle (°)	100.5
Center Beam Candle Power (cd)	6107

**Luminous Intensity Distribution Diagram:**

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



**Isocandela Diagram:**



**Zonal Flux Diagram:**

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	lum./lamp
10	6065	6074	6066	6072	6103	6105	6107	6106	0- 10	584.5	584.5	9.89,9.89
20	5787	5792	5792	5809	5869	5885	5867	5875	10- 20	1690	2274	18.1,18.1
30	5270	5286	5285	5305	5422	5440	5417	5415	20- 30	2592	4866	22.4,22.4
40	4345	4394	4365	4420	4640	4654	4621	4595	30- 40	3111	7977	59.1,59.1
50	2908	2922	2941	3013	3326	3340	3306	3262	40- 50	2966	10942	72.8,72.8
60	1525	1590	1609	1657	1861	1919	1895	1858	50- 60	2141	13059	87.1,87.1
70	705.2	775.0	825.1	821.5	896.9	965.9	995.8	924.6	60- 70	1247	14220	95.4,95.4
80	126.7	180.4	217.0	211.4	285.5	325.6	258.2	294.7	70- 80	578.5	14908	99.2,99.2
90	1.410	1.540	1.602	1.472	2.794	3.007	1.788	1.712	80- 90	76.48	14985	99.7,99.7
100	1.668	2.764	2.172	2.499	1.928	1.662	2.370	1.665	90-100	1.870	14987	99.8,99.8
110	3.648	4.748	4.474	4.256	3.527	3.200	4.419	3.261	100-110	2.075	14990	99.8,99.8
120	7.102	6.418	7.229	7.268	5.702	5.380	6.724	5.380	110-120	4.979	14995	99.8,99.8
130	9.668	7.699	9.922	8.007	6.458	6.852	8.644	6.597	120-130	6.587	15001	99.8,99.8
140	10.28	11.22	11.22	8.841	9.224	7.980	10.44	7.781	130-140	7.079	15008	99.9,99.9
150	11.47	12.18	9.989	10.96	9.477	8.993	10.62	8.920	140-150	6.959	15015	99.9,99.9
160	12.17	12.21	9.922	11.91	9.929	8.845	10.56	9.800	150-160	4.905	15020	100,100
170	13.96	13.01	12.48	13.39	12.05	11.46	12.17	11.97	160-170	3.169	15023	100,100
180	14.48	13.91	13.96	13.58	14.41	13.20	14.08	13.26	170-180	1.274	15024	100,100
DEG	LUMINOUS INTENSITY:cd Less than 25% Percent = 6.2 %										UNIT:lm	







**Equipment List:**

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2016-12-03	2017-12-02
NTC-F01-006	2.0 meter Integrating Sphere	2016-12-03	2017-12-02
NTC-F01-013	Standard Lamp	2016-12-27	2017-12-26
NTC-F01-031	Digital Power Meter	2016-12-05	2017-12-04
NTC-F01-019	Temperature & Humidity Meter	2016-11-28	2017-11-27



NVLAP LAB CODE 600150-0

Report No: NTCR17060021  
Report Version: V1.1

**\*\*\*\*\*END OF DATASHEET\*\*\*\*\***