



Photometric Test Report

Relevant Standards

- IES LM-79-2008
- ANSI C82.77:2014

Prepared For RAB LIGHTING INC

170 Ludlow Ave, PO BOX 970, Northvale, NJ 07647-2305 USA

Crystal Wu 13482123342, Crystal.Wu@rabweb.com

Prepared By

Deliver Co., Ltd.

Block 11, 78 Keling Road, SSTP, Suzhou, China

0512-66801950, kevin.jia@szdeliver.com

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Prepared By

Wangzun Zhu

Wangzun Zhu

Approved By

Kevin Jia

Kevin Jia

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1.0 Test Summary

DLC Technical Requirements v4.3

Linear Replacement Lamps - Replacement Lamps ("Plug and Play") (UL Type A)				
Requirement Category	Test Method	Requirements	Test value	Results (Fail/Pass)
Lamp Output (lm)	IES LM-79-2008	≥ 2000	2127	P
Zonal Lumen Requirement(0°-60°)	IES LM-79-2008	$\geq 75\%$	87.66%	P
Minimum Luminaire Efficacy (lm/W)	IES LM-79-2008	≥ 100	102.2	P
Allowable CCTs* (K)	IES LM-79-2008	3045±175	3012	P
		5029±283	5184	P
Minimum CRI	IES LM-79-2008 CIE 13.3-1995	≥ 80	84.2	P
SC (0°-180°)	IES LM-79-2008	1.0-2.0	1.51	P
SC (90°-270°)	IES LM-79-2008	1.0-2.0	1.22	P
Power Factor	ANSI C82.77:2014	≥ 0.9	0.995	P
		≥ 0.9	0.930	P
Total Harmonic Distortion (A%)	ANSI C82.77:2014	$\leq 20\%$	9.28%	P
		$\leq 20\%$	14.26%	P

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2018/9/10	T8-6-24P-830-DIR/ T8-6-24P-850-DIR	E1/E4
2	Goniophotometer Test	2018/9/10	T8-6-24P-830-DIR	E1-E3
3	THD and PF Test	2018/9/10	T8-6-24P-830-DIR	E1

Remark(If any)
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3.0 Production Description

Luminaire Description: T8-6-24P-830-DIR/T8-6-24P-850-DIR

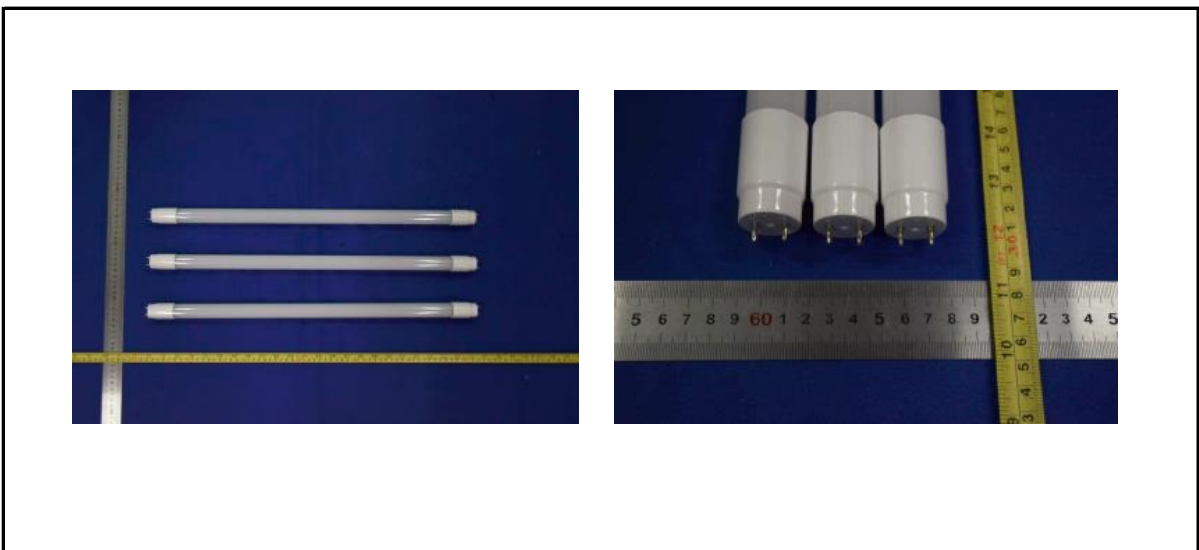
Electrical Specification: 120V-277V,50/60HZ, 6W

Test in fixture: Lithonia 2PM3 cell 2x2 parabolic Troffer

Light source: SPMWHX228FXXXXXXXXX

Manufacturer Of Light Source: Samsung Electronics Co., LTD.

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	T8-6-24P-830-DIR	Sample ID.	E1
Model No.	T8-6-24P-850-DIR	Sample ID.	E4
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$.

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 voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

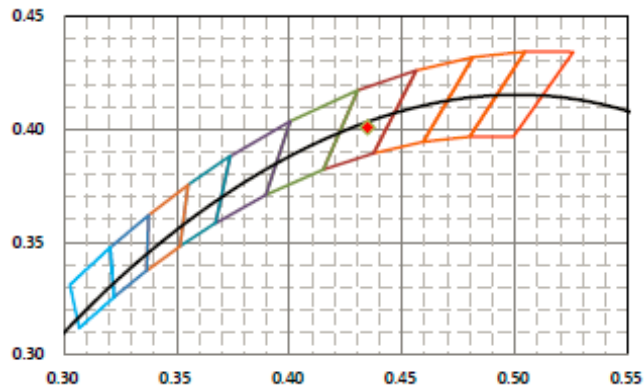
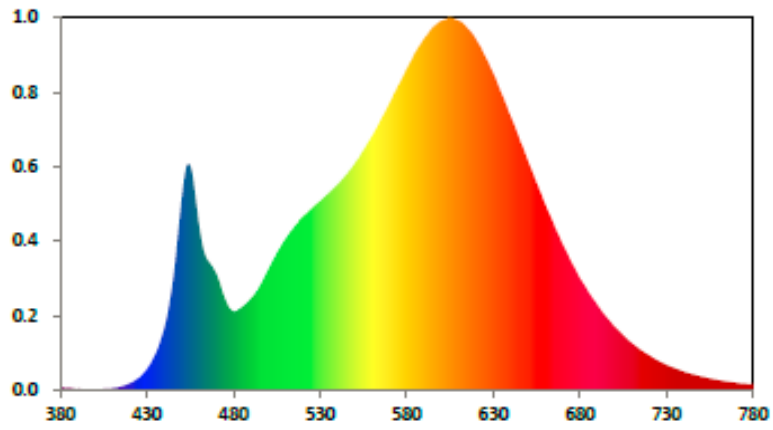
Test Conditions

Model No.	Temperature ($^{\circ}\text{C}$)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
T8-6-24P-830-DIR	25.1	120.08	60	0.058	6.94	0.995
T8-6-24P-850-DIR	25.1	120.05	60	0.058	6.93	0.995

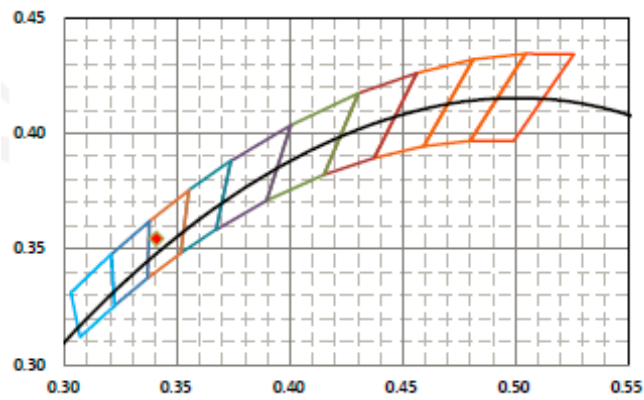
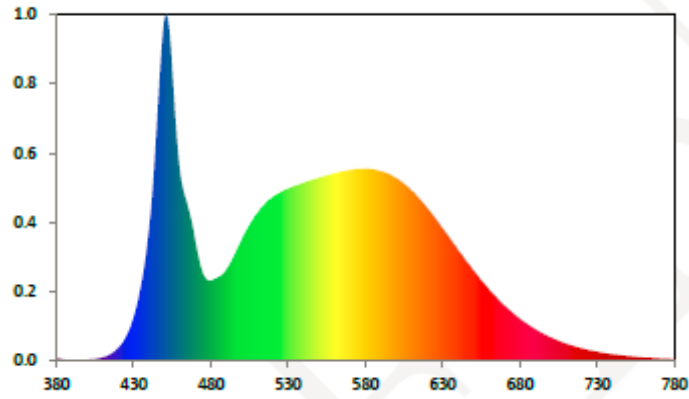
Test Result

Model No.	CCT (K)	CRI (Ra)	Duv
T8-6-24P-830-DIR	3012	84.2	-9.9E-04
T8-6-24P-850-DIR	5184	83.3	3.3E-03

4.1 Integrating Sphere Test T8-6-24P-830-DIR



4.1 Integrating Sphere Test T8-6-24P-850-DIR



4.0 LM-79 Measurement and Test Results

4.3 Goniophotometer Test

Model No.	T8-6-24P-830-DIR	Sample ID.	E1-E3
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric parameters were measured using a type C goniophotometer and software.

The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 10° horizontal intervals.

Test Conditions

Three tubes were placed in a reference housing during testing

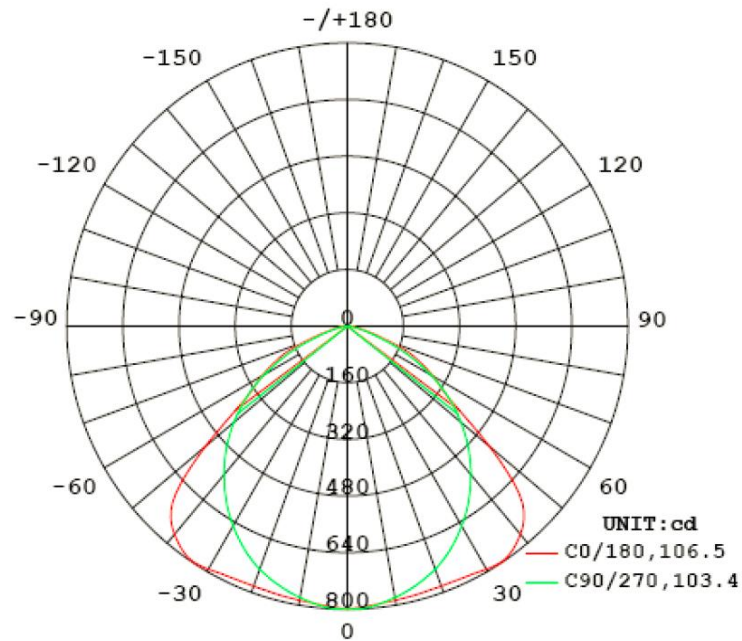
Temperature ($^{\circ}\text{C}$)	Voltage (Vac)	Frequency (Hz)	Power (W)	Orientation
25.10	120.00	60	20.81	Light Down

Test Result

Flux(lm)	Zonal Lumen Requirement(0° - 60°)	SC (0° - 180°)	SC (90° - 270°)	Luminous Efficacy (lm/W)
2127	87.66%	1.51	1.22	102.2

4.3 Goniophotometer Test

Light Distrubtion Curve



4.3 Goniophotometer Test

Zonal Lumen Summary

Deg	Flux (lm)	%
0~10°	75.205	3.54
10~20°	216.631	10.18
20~30°	338.18	15.9
30~40°	430.343	20.23
40~50°	457.13	21.49
50~60°	346.991	16.32
60~70°	189.789	8.92
70~80°	59.699	2.81
80~90°	8.805	0.41
90~100°	0.338	0.01
100~110°	0.662	0.04
110~120°	0.749	0.03
120~130°	0.485	0.02
130~140°	0.524	0.03
140~150°	0.573	0.03
150~160°	0.522	0.02
160~170°	0.324	0.02
170~180°	0.098	0

5.0 THD and PF Test

Model No.	T8-6-24P-830-DIR	Sample ID.	E1
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Test Method

The samples were tested according to the ANSI C82.77:2002.

The total harmonic distortion shall be measured to the 40th order.

The ambient temperature condition was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Power Factor	THD
25.1	120.00	60	0.995	9.28%
25.1	277.00	60	0.930	14.26%

6.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2017/12/28	2018/12/27
DLF108	Auxiliary Lamp	2017/12/28	2018/12/27
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2017/12/28	2018/12/27
DLF116	AC Power Source	2017/12/28	2018/12/27
DLF113	Power Meter	2017/12/28	2018/12/27
DLF112	Temperature Recorder	2017/12/28	2018/12/27
DLF114	Temperature & Humidity Datalogger	2017/12/28	2018/12/27
DLF101	Goniophotometer	2017/12/28	2018/12/27
DLF125	Standard Lamp Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-derectional	2017/12/28	2018/12/27
DLF104	AC Power Source	2017/12/28	2018/12/27
DLF507	DC Power Source	2017/12/28	2018/12/27
DLF102	Power Meter	2017/12/28	2018/12/27
DLF111	Temperature & Humidity Datalogger	2017/12/28	2018/12/27
DLF119	Power Meter	2017/12/28	2018/12/27
DLF031	Temperature data logger	2017/12/28	2018/12/27
DLF022	Digital power meter	2017/12/28	2018/12/27
DLF003	Temperature & Humidity Datalogger	2017/12/28	2018/12/27

***** End of Test Report*****