



Photometric Test Report

Relevant Standards

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

Prepared For RAB LIGHTING INC

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Project Number

DLF1809118

Report Number

DLF1809118-5a

Test Date

2018/9/29

Issue Date

2018/9/29

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The results contained in this report pertain only to the tested sample.

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1.0 Test Summary

DLC Technical Requirements v4.3

E26 Lamps				
Requirement Category	Test Method	Requirements	Test value	Results (Fail/Pass)
Lamp Output (lm)	IES LM-79-2008	-	6386	-
Zonal Lumen Requirement(0°-90°)	IES LM-79-2008	-	53.05%	-
Minimum Luminaire Efficacy (lm/W)	IES LM-79-2008	-	141.4	-
Allowable CCTs* (K)	IES LM-79-2008	-	3071	-
Minimum CRI	IES LM-79-2008 CIE 13.3-1995	-	82.7	-
Power Factor	ANSI C82.77:2014	-	0.913	-
		-	0.989	-
Total Harmonic Distortion (A%)	ANSI C82.77:2014	-	15.13%	-
		-	11.16%	-

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2018/9/29	HID-45-E26-830-BYP-PT	E1
2	Goniophotometer Test	2018/9/29	HID-45-E26-830-BYP-PT	E1
3	THD and PF Test	2018/9/29	HID-45-E26-830-BYP-PT	E1

Remark(If any)

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3.0 Production Description

Luminaire Description: HID-45-E26-830-BYP-PT

Electrical Specification: 120V-277V,50/60HZ, 45W

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	HID-45-E26-830-BYP-PT	Sample ID.	E1
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

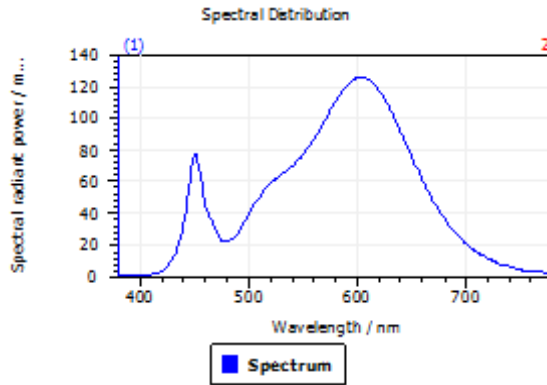
Model No.	Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
HID-45-E26-830-BYP-PT	25.1	277.01	60.00	0.179	45.30	0.913

Test Result

Model No.	CCT (K)	CRI (Ra)	Duv
HID-45-E26-830-BYP-PT	3071	82.7	2.1E-03

4.1 Integrating Sphere Test
HID-45-E26-830-BYP-PT

Results



Spectral values

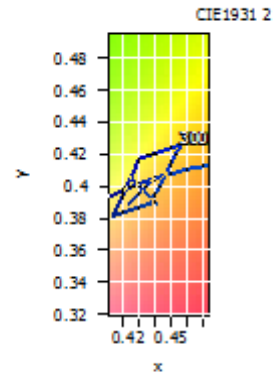
DominantWavelength	583.40 nm
Purity	0.493
PeakWavelength	603.59 nm
Radiant Power	19.23 W
Width50%	131.43 nm

Color Coordinates

Correlated Color Temperature 3025 K

x: 0.4325 u: 0.2503 u': 0.2503
y: 0.3980 v: 0.3455 v': 0.5183

ResultsCRICRI01	82.0	ResultsCRICRI09	12.5
ResultsCRICRI02	90.8	ResultsCRICRI10	78.6
ResultsCRICRI03	96.6	ResultsCRICRI11	81.0
ResultsCRICRI04	81.8	ResultsCRICRI12	70.8
ResultsCRICRI05	82.0	ResultsCRICRI13	84.0
ResultsCRICRI06	88.2	ResultsCRICRI14	98.5
ResultsCRICRI07	84.0	ResultsCRICRI15	75.7
ResultsCRICRI08	61.9	ResultsCRICRI16	73.8
ResultsCRI	83.4		



PlanckDistance 1.8E-003

4.0 LM-79 Measurement and Test Results

4.3 Goniophotometer Test

Model No.	HID-45-E26-830-BYP-PT	Sample ID.	E1
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

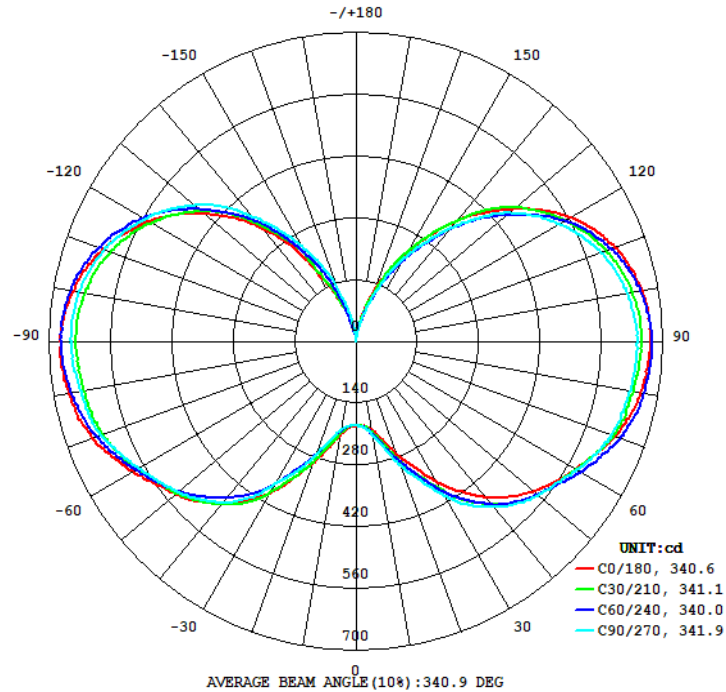
Temperature ($^{\circ}\text{C}$)	Voltage (Vac)	Frequency (Hz)	Power (W)	Orientation
25.10	276.98	60	45.1	Light Down

Test Result

Flux(lm)	Zonal Lumen Requirement(0° - 90°)	Luminous Efficacy (lm/W)
6386	53.05%	141.4

4.3 Goniophotometer Test

Light Distrubtion Curve



4.3 Goniophotometer Test

Zonal Lumen Summary

	Zonal (lm)		Total (lm)	Percent
0 - 10	19.01	0 - 10	19.01	0.30%
10 - 20	69.64	0 - 20	88.65	1.39%
20 - 30	155.00	0 - 30	243.65	3.82%
30 - 40	272.79	0 - 40	516.44	8.09%
40 - 50	392.36	0 - 50	908.80	14.23%
50 - 60	498.01	0 - 60	1406.81	22.03%
60 - 70	596.97	0 - 70	2003.78	31.38%
70 - 80	672.95	0 - 80	2676.73	41.92%
80 - 90	710.88	0 - 90	3387.61	53.05%
90 - 100	710.05	0 - 100	4097.66	64.17%
100 - 110	663.61	0 - 110	4761.27	74.56%
110 - 120	574.95	0 - 120	5336.22	83.56%
120 - 130	453.97	0 - 130	5790.19	90.67%
130 - 140	316.27	0 - 140	6106.46	95.62%
140 - 150	181.91	0 - 150	6288.37	98.47%
150 - 160	77.56	0 - 160	6365.93	99.69%
160 - 170	18.83	0 - 170	6384.76	99.98%
170 - 180	1.10	0 - 180	6385.86	100.00%

5.0 THD and PF Test

Model No.	HID-45-E26-830-BYP-PT	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	277.01	60	0.913	15.13%
25.1	120.01	60	0.989	11.16%

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*****