



# REPORT

25800 COMMERCENTRE DRIVE, LAKE FOREST, CA 92630

Project No. G102753375

Date: October 11, 2016

REPORT NO. 102753375LAX-009

TEST OF ONE LED PENDANT

MODEL NO. P4030-LED4-SO-FWA -D1 - PENDANT  
LED MODEL NO. NICHIA NFSL757D  
DRIVER MODEL NO. OSRAM 79339

RENDERED TO

PRUDENTIAL LTG  
1774 EAST 21ST STREET  
LOS ANGELES, CA 90058-1008

TEST: Electrical and Photometric tests as required to the IESNA test standard.

STATEMENT OF LIMITATION: This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00710638-1.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number P4030-LED4-SO-FWA -D1 - pendant. The sample was received by Intertek on September 27, 2016, in undamaged condition and one sample was tested as received. The sample designation was LAN1609271342-002.

DATES OF TESTS: October 3, 2016 through October 4, 2016.

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SUMMARY

Model No.:	P4030-LED4-SO-FWA -D1 - pendant
Description:	LED Pendant

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	9241	8968
Total Power (W)	112.1	111.8
Luminaire Efficacy (LPW)	82.44	80.21

Criteria	Result
Power Factor	0.996
Current ATHD %	7.90
Correlated Color Temperature (CCT - K)	3874
Color Rendering Index (CRI - Ra)	82.4
Color Rendering Index (CRI - R9)	15.3
DUV	0.000
Chromaticity Coordinate (x)	0.386
Chromaticity Coordinate (y)	0.381
Chromaticity Coordinate (u')	0.227
Chromaticity Coordinate (v')	0.505

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
LapSphere 3M Integrating Sphere	CA-11821-LRT	000830	10/03/16	11/03/16	10/03/16
LabSphere Spectrometer	CDS-3020	000834	10/03/16	11/03/16	10/03/16
California Instruments Power Supply	CSW5550	001338	VBV	VBV	10/03/16
Yokogawa Power Meter	WT333	001320	06/10/16	06/10/17	10/03/16
Extech Instruments Stop Watch	365510	001379	11/19/15	11/19/16	10/03/16
Temp. & RH Meter	971	001178	12/18/15	12/18/16	10/03/16
LSI High Speed Mirror Goniometer	6440T	000943	09/12/16	10/12/16	10/04/16
Elgar Power Supply	CW1251	000944	VBV	VBV	10/04/16
Yokogawa Power Analyzer	WT210	000945	12/04/15	12/04/16	10/04/16
Temp. & RH Meter	971	001380	12/17/15	12/17/16	10/04/16
Extech Instruments Stop Watch	365510	001379	11/19/15	11/19/16	10/04/16
Tape Measure	C1-25	000915	12/04/15	12/04/16	10/04/16
Protractor	33840	000087	12/22/15	12/22/16	10/04/16



## TEST METHODS

### Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

### Photometric and Electrical Measurements – Integrating Sphere Method

A Labsphere CDS 3020 Spectrometer and Three Meter Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Yokogawa Power Analyzer.

The calibration of the sphere spectrometer system is traceable to the National Institute of Standards and Technology.

### Photometric and Electrical Measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.



**RESULTS OF TEST**

**Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method**

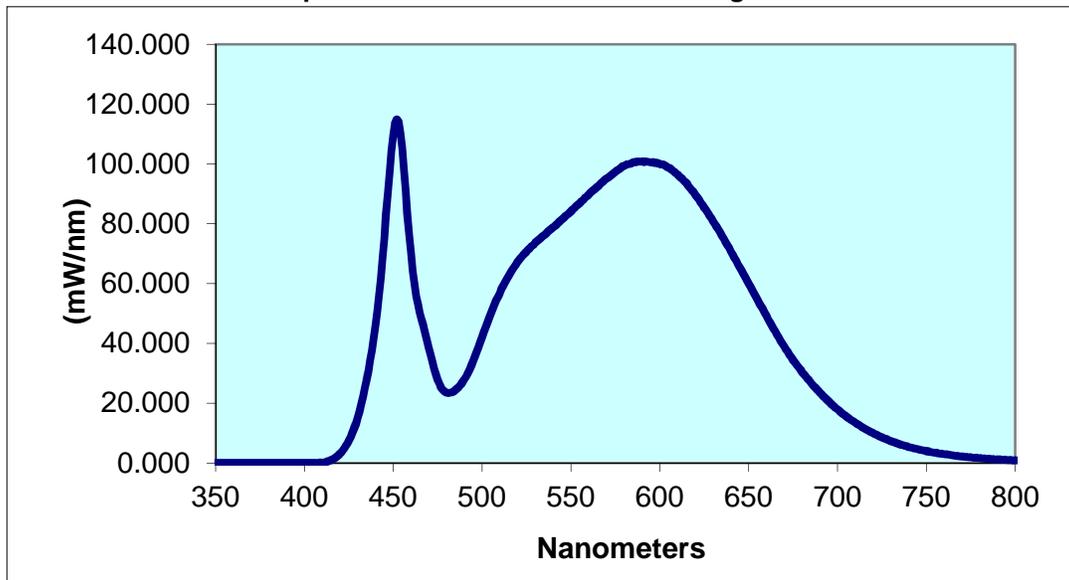
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
LAN1609271342-002	UP	120.0	937.7	112.1	0.996	7.90	9241	82.44

Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
3874	82.4	15.3	0.000	0.386	0.381	0.227	0.505

**Spectral Distribution over Visible Wavelengths**

nm	mW/nm								
350	0.006	440	46.01	530	73.75	620	89.64	710	13.48
355	0.006	445	75.09	535	76.19	625	85.44	715	11.62
360	0.006	450	109.8	540	78.85	630	80.92	720	10.02
365	0.006	455	105.4	545	81.53	635	76.00	725	8.610
370	0.006	460	69.96	550	84.16	640	70.79	730	7.322
375	0.006	465	50.21	555	86.99	645	65.38	735	6.244
380	0.006	470	38.57	560	89.78	650	60.00	740	5.350
385	0.006	475	27.82	565	92.52	655	54.58	745	4.622
390	0.006	480	23.54	570	95.10	660	49.28	750	3.962
395	0.006	485	24.45	575	97.39	665	43.90	755	3.399
400	0.006	490	27.96	580	99.37	670	38.92	760	2.932
405	0.006	495	34.09	585	100.6	675	34.48	765	2.553
410	0.131	500	42.07	590	100.9	680	30.56	770	2.154
415	0.942	505	50.05	595	100.6	685	26.89	775	1.851
420	3.102	510	56.87	600	100.0	690	23.59	780	1.543
425	7.438	515	62.62	605	98.74	695	20.64		
430	15.13	520	67.29	610	96.55	700	17.95		
435	27.68	525	70.65	615	93.61	705	15.53		

**Spectral Data Over Visible Wavelengths**



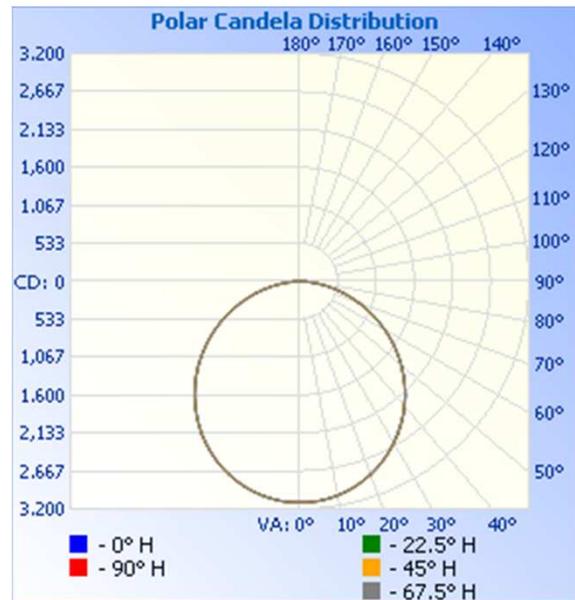
**RESULTS OF TEST**

**Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method**

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
LAN1609271342-002	UP	120.0	935.8	111.8	0.996	8968	80.21

**Intensity (Candlepower) Summary at 25°C - Candelas**

Angle	0	22.5	45	67.5	90
0	3111	3111	3111	3111	3111
5	3096	3096	3096	3096	3097
10	3054	3054	3054	3055	3054
15	2983	2987	2984	2984	2984
20	2887	2889	2889	2889	2889
25	2765	2768	2767	2766	2768
30	2618	2625	2625	2623	2627
35	2452	2461	2457	2459	2462
40	2281	2272	2272	2272	2275
45	2076	2072	2071	2070	2075
50	1853	1854	1850	1851	1854
55	1626	1621	1619	1617	1620
60	1377	1380	1376	1377	1379
65	1132	1129	1124	1128	1128
70	874	876	874	874	877
75	629	629	627	630	631
80	392	393	390	393	394
85	166	173	169	172	173
90	0	0	0	0	0

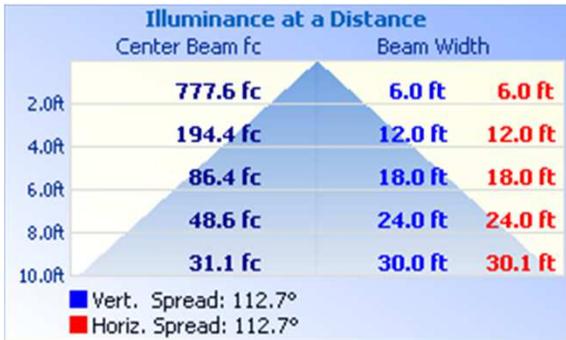


**RESULTS OF TEST**

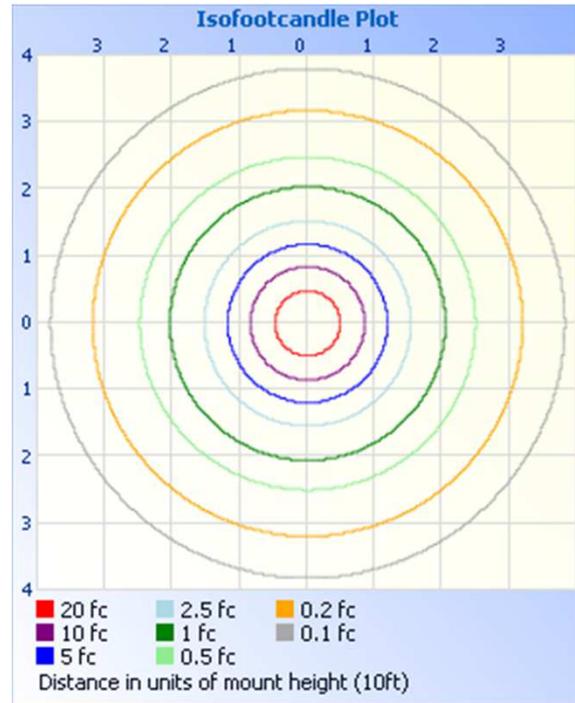
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	2411	26.9
0-40	3949	44.0
0-60	6993	78.0
60-90	1975	22.0
0-90	8968	100.0
90-180	0.0	0.0
0-180	8968	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	294.1	3.3
10-20	842.0	9.4
20-30	1275	14.2
30-40	1538	17.1
40-50	1597	17.8
50-60	1447	16.1
60-70	1115	12.4
70-80	665.0	7.4
80-90	195.1	2.2

PICTURE (not to scale)



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:



Jesse Reyna  
Engineer  
Lighting Division

Attachment: None

Report Reviewed By:



Vladimir Kozak  
Engineering Supervisor  
Lighting Division