



# REPORT

545 E. Algonquin Rd., Arlington Heights, IL 60005

Project No. G102235195

Date: October 22, 2015

REPORT NO. 102235195CHI-008

TEST OF ONE LED UNDERCABINET

MODEL NO. DOT-RD-1W-90D-30K-SA  
LED MODEL NO. LUMILEDS LUXEON T

RENDERED TO

EDGE LIGHTING  
1718 W. FULLERTON AVE  
CHICAGO, IL 60614

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 NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00595093-1.

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

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number DOT-RD-1W-90D-30K-SA. The sample was received by Intertek on October 8, 2015, in undamaged condition and one sample was tested as received. The sample designation was AH10082015032735-8.

DATES OF TESTS: October 16, 2015 through October 22, 2015.

---

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

## SUMMARY

Model No.:	DOT-RD-1W-90D-30K-SA
Description:	LED Undercabinet

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	31.58	31.60
Total Power (W)	2.793	2.821
Luminaire Efficacy (LPW)	11.31	11.20

Criteria	Result
Power Factor	0.975
Current ATHD %	17.37
Correlated Color Temperature (CCT - K)	3109
Color Rendering Index (CRI - Ra)	94.2
Color Rendering Index (CRI - R9)	69.6
DUV	0.002
Chromaticity Coordinate (x)	0.427
Chromaticity Coordinate (y)	0.396
Chromaticity Coordinate (u')	0.247
Chromaticity Coordinate (v')	0.517

## EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/14/15	07/14/16	10/22/15
Omega Thermometer	DPI8-C24	146920	10/09/15	10/09/16	10/22/15
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	10/22/15
Newport Hygrometer	iServer	146956	01/06/15	01/06/16	10/22/15
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	10/22/15
Labsphere 2M Sphere & Spectroradiation	CDS600	146137	VBU	VBU	10/16/15
Elgar AC Power Supply	CW1251M	146113	VBU	VBU	10/16/15
Sorenson DC Power Supply	XFR150-8	146847	VBU	VBU	10/16/15
Yokogawa Power Analyzer	WT1600	146770	04/07/15	04/07/16	10/16/15
Omega Temperature	MDSi8	146873	07/09/15	07/09/16	10/16/15
Newport Thermohygrometer	iTHX-M	146382	07/09/15	07/09/16	10/16/15

## 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 Model CDS 1100 CCD Array Spectroradiometer and Two Meter or Ten Foot 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 Xitron or Yokogawa Power Analyzer.

The calibration of the sphere photometer-spectroradiometer 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 Xitron or 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**

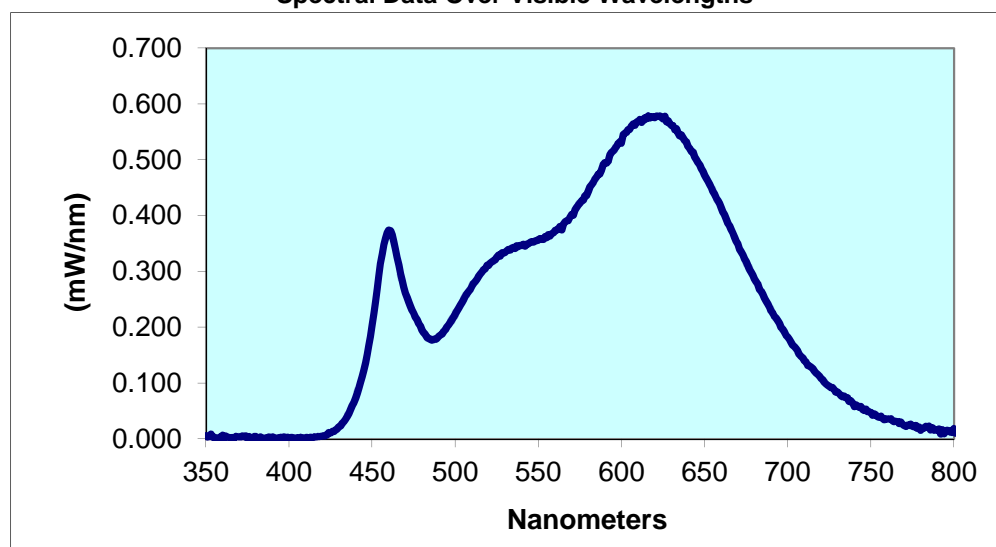
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH10082015032735-8	Up	120.0	23.85	2.793	0.975	17.37	31.58	11.31

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')
3109	94.2	69.6	0.002	0.427	0.396	0.247	0.517

## **Spectral Distribution over Visible Wavelengths**

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.006	440	0.074	530	0.334	620	0.576	710	0.140
355	0.003	445	0.122	535	0.343	625	0.573	715	0.126
360	0.006	450	0.203	540	0.346	630	0.562	720	0.109
365	0.001	455	0.314	545	0.352	635	0.543	725	0.094
370	0.004	460	0.374	550	0.356	640	0.524	730	0.084
375	0.001	465	0.326	555	0.361	645	0.501	735	0.073
380	0.004	470	0.261	560	0.374	650	0.472	740	0.058
385	0.001	475	0.225	565	0.385	655	0.444	745	0.053
390	0.004	480	0.195	570	0.402	660	0.414	750	0.047
395	0.003	485	0.178	575	0.423	665	0.382	755	0.039
400	0.001	490	0.183	580	0.444	670	0.349	760	0.036
405	0.001	495	0.201	585	0.470	675	0.318	765	0.031
410	0.002	500	0.224	590	0.495	680	0.287	770	0.024
415	0.003	505	0.249	595	0.516	685	0.259	775	0.023
420	0.005	510	0.273	600	0.530	690	0.230	780	0.016
425	0.011	515	0.296	605	0.555	695	0.207		
430	0.022	520	0.311	610	0.569	700	0.182		
435	0.041	525	0.326	615	0.573	705	0.162		

**Spectral Data Over Visible Wavelengths**



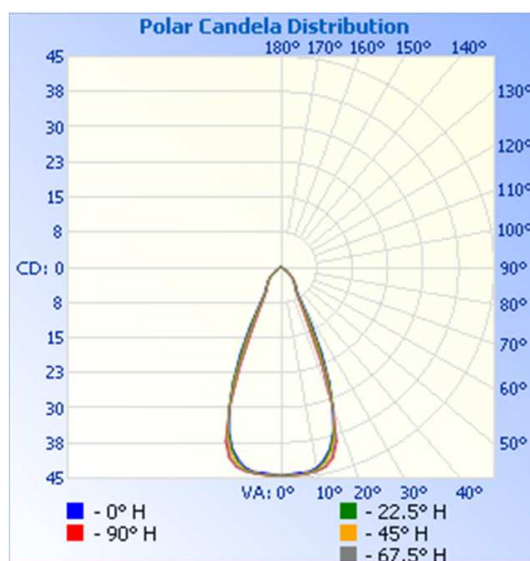
## RESULTS OF TEST (cont'd)

### 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 (LPW)
AH10082015032735-8	Up	120.0	30.07	2.821	0.782	31.60	11.20

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

Angle	0	22.5	45	67.5	90
0	45	45	45	45	45
5	44	44	44	44	44
10	43	44	44	44	44
15	40	40	41	42	42
20	32	32	32	32	32
25	20	19	17	15	14
30	9	8	7	7	7
35	5	5	5	5	5
40	5	4	4	4	4
45	4	4	4	4	4
50	3	3	3	3	3
55	2	2	2	2	2
60	1	1	1	1	1
65	1	1	1	0	0
70	0	0	0	0	0
75	0	0	0	0	0
80	0	0	0	0	0
85	0	0	0	0	0
90	0	0	0	0	0



## RESULTS OF TEST (cont'd)

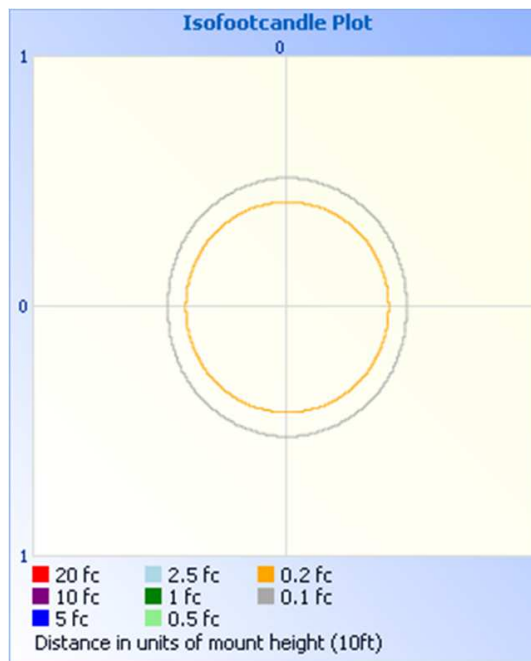
### Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



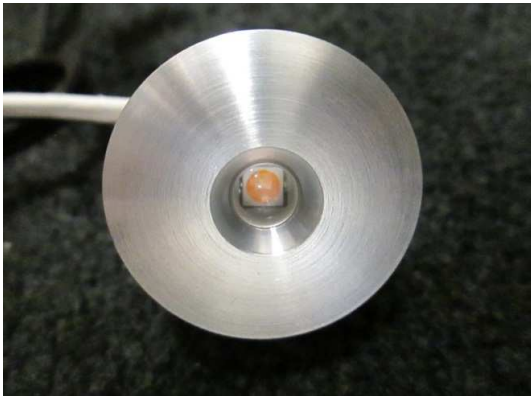
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	23.4	74.1
0-40	26.8	84.8
0-60	31.0	98.2
60-90	0.6	1.8
0-90	31.6	100.0
90-180	0.0	0.0
0-180	31.6	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	4.2	13.3
10-20	11.1	35.1
20-30	8.1	25.6
30-40	3.4	10.8
40-50	2.7	8.6
50-60	1.5	4.7
60-70	0.5	1.6
70-80	0.0	0.2
80-90	0.0	0.0

PICTURES (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.

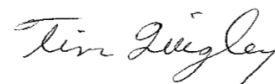
In Charge Of Tests:



Vladimir Kozak  
Senior Associate Engineer  
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley  
Engineer  
Lighting Division