



REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100082487

Original Issue Date: April 28, 2010

Revision Date: July 14, 2010

REPORT NO. 100082487CRT-007

TEST OF ONE LED LAMP
MODEL NO. AE26R3082760Q

RENDERED TO

NEXXUS LIGHTING INC.
124 FLOYD SMITH DRIVE
SUITE 300
CHARLOTTE, NC 28262

REVISION NOTE JULY 14, 2010: This report was revised to change the model number by client request.

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

LABORATORY NOTE: The laboratory that conducted the testing detailed in this report has been Qualified, Verified, and Recognized for LM-79 Testing for ENERGY STAR for SSL by US DOE's CALiPER program.

AUTHORIZATION: The testing performed was authorized by signed quote number 500222294.

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 Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2008 Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted 10 samples of model number AE26R3082760Q. The samples were received by Intertek on April 1, 2010, in undamaged condition, and 10 samples were tested as received. The sample designations were N4794LP through N4803LP.

DATES OF TESTS: April 21, 2010 through April 28, 2010

SUMMARY

Model No.: AE26R3082760Q
Description: LED PAR30/R30 LAMP

Criteria	Result
Total Lumen Output	519.2
Total Power	8.040W
Luminaire Efficacy	64.58
Power Factor	0.9251
Color Rendering Index (CRI)	90.27
Correlated Color Temperature (CCT)	2813K
Chromaticity Coordinate (x)	0.458
Chromaticity Coordinate (y)	0.421
Chromaticity Coordinate (u')	0.257
Chromaticity Coordinate (v')	0.531
Color Spatial Uniformity	max Δ = 0.0104

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Calibration Date	Calibration Due Date
Elgar AC Power Supply	1001SX	---	---	---
Xitron Power Analyzer	2503H	E235	04/09/10	04/09/11
Elgar AC Power Supply	CW1251	--	--	--
Yokogawa Power Analyzer	WT1600	E462	06/02/09	06//02/10
Labsphere Diode Array	DAS 1100	N714	Before Use	Before Use
Leeds & Northup Standard Resistor	Manganin	Y089	02/10/10	02/10/11
Data Precision Digital Voltmeter	3600	V124	02/10/10	02/10/11
Fluke Multimeter	45	M133	02/10/10	02/10/11
Fluke Temperature Meter	52	T801	06/09/09	06/09/10
Kikusui DC Power Supply	35-10L	E160	---	---
Sorenson DC Power Supply	DLM150-20E	--	---	---
UDT Optometer	S370	N301	Before Use	Before Use
ITS Two Meter Diameter Integrating Sphere	---	N308	Before Use	Before Use
ITS Ten Foot Diameter Integrating Sphere	---	N307	Before Use	Before Use
NIST Luminous Flux Standard Sources	---	150-25, 8036, 3062	12/09/08	12/09/09
NIST Spectral Flux Standard Source	RF0605	---	11/29/06	100 hours of use
LSI High Speed Mirror Goniophotometer	6440	--	Before Use	Before Use
Labsphere CDS 1100 CCD Spectroradiometer	CDS1100	--	Before Use	Before Use
Optronics Spectroradiometer	EL750D	E288	Before Use	Before Use

TEST METHODS

Seasoning in Sample Orientation – LED Products

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

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.

Photometric and Electrical Measurements – Integrating Sphere Method

A Labsphere Model DAS 1100 Diode 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.

Color Spatial Uniformity

The spatial distribution of chromaticity coordinates (u' v') were measured within two vertical planes (CIE), 0° and 90° in vertical 10° increments until the light output dropped to below 10% of the maximum light output. The averaged weighted chromaticity coordinate was calculated from these points. The data was then analyzed to check for delta color differences of the u' , v' chromaticity coordinates.

Estimated Total Operating Time

10 HOURS

RESULTS OF TESTS

Photometric Measurements at 25°C – Integrating Sphere Method

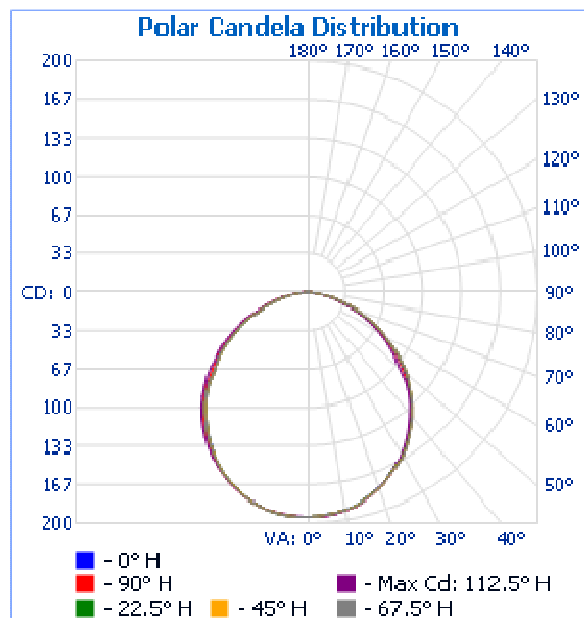
Intertek Sample No.	Correlated Color Temperature (K)	CRI	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
AE26R3082760Q						
N4794LP	2815	90.00	0.453	0.422	0.256	0.531
N4795LP	2814	90.10	0.457	0.420	0.256	0.530
N4796LP	2778	91.20	0.459	0.420	0.258	0.531
N4797LP	2827	90.00	0.457	0.421	0.256	0.531
N4798LP	2855	91.20	0.461	0.421	0.259	0.531
N4799LP	2771	89.20	0.462	0.423	0.258	0.532
N4800LP	2760	91.50	0.461	0.421	0.259	0.532
N4801LP	2849	89.80	0.454	0.420	0.255	0.530
N4802LP	2807	90.00	0.459	0.423	0.257	0.532
N4803LP	2855	89.70	0.454	0.420	0.255	0.530
Average	2813	90.27	0.458	0.421	0.257	0.531

Photometric and Electrical Measurements – 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)
AE26R3082760Q							
N4794LP	UP	120.0	72.41	8.040	0.9251	519.2	64.58

Intensity (Candlepower) Summary at 25°C - Candelas

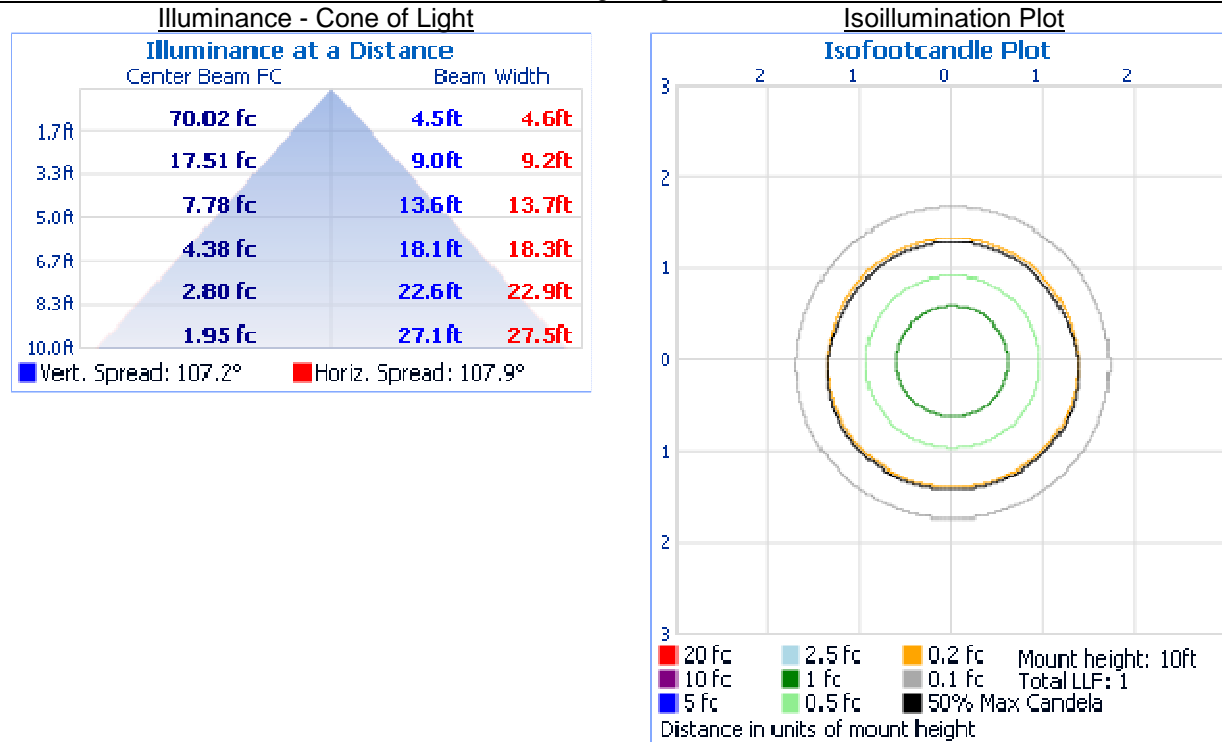
Angle	0	22.5	45	67.5	90
AE26R3082760Q					
0	194	194	194	194	194
5	193	193	193	194	194
10	191	191	192	192	192
15	187	187	187	187	187
20	181	181	181	182	181
25	172	172	173	173	173
30	164	164	164	165	164
35	153	153	153	154	152
40	141	141	142	142	139
45	127	127	128	128	126
50	112	113	113	113	109
55	96	96	96	96	94
60	79	79	80	80	76
65	63	62	63	63	60
70	46	46	46	46	44
75	29	29	30	30	28
80	15	15	15	15	13
85	4	4	5	5	4
90	0	0	0	0	0



RESULTS OF TESTS (cont'd)

Illumination Plots

Model No.: AE26R3082760Q
Mounting Height: 10 ft.



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
AE26R3082760Q		
0-30	150.7	29.0
0-40	245.6	47.3
0-60	425.1	81.9
60-90	93.8	18.1
0-90	518.9	99.9
90-180	0.3	0.1
0-180	519.2	100.0

Reflector Summary

	Efficiency (%)	Lumens	Horizontal Spread (°)	Vertical Spread (°)
AE26R3082760Q				
Field (10%):	98.1	509.6	155.6	155.4
Beam (50%):	72.2	374.7	107.9	107.2
Total:	100.0	519.0		

RESULTS OF TESTS (cont'd)

Color Spatial Uniformity

Sample No: AE26R3082760Q
 Model No.: N4794LP

Vertical Angle (°)	Horizontal Angle = 0°			Horizontal Angle = 90°		
	Candlepower (cd)	CIE' 1976 Chromaticity u'	CIE' 1976 Chromaticity v'	Candlepower (cd)	CIE' 1976 Chromaticity u'	CIE' 1976 Chromaticity v'
0	195	0.2463	0.5289	195	0.2463	0.5289
10	192	0.2467	0.5286	191	0.2461	0.5286
20	181	0.2465	0.5285	181	0.2474	0.5291
30	164	0.2500	0.5297	164	0.2496	0.53
40	139	0.2526	0.5308	141	0.2522	0.5312
50	109	0.2563	0.5318	112	0.2552	0.5323
60	77	0.2599	0.5328	79	0.2618	0.5334
70	44	0.2632	0.5336	46	0.264	0.534

Weighted Average

u'	v'
0.2536	0.5311

Vertical Angle (°)	Horz. 0 Δu'	Horiz. 0 Δv'	Horz. 90 Δu'	Horiz. 90 Δv'
0	-0.0073	-0.0022	-0.0073	-0.0022
10	-0.0069	-0.0025	-0.0075	-0.0025
20	-0.0071	-0.0026	-0.0062	-0.0020
30	-0.0036	-0.0014	-0.0040	-0.0011
40	-0.0010	-0.0003	-0.0014	0.0001
50	0.0027	0.0007	0.0016	0.0012
60	0.0063	0.0017	0.0082	0.0023
70	0.0096	0.0025	0.0104	0.0029

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:

Handwritten signature of Jeffrey Davis in black ink.

Jeffrey Davis
Associate Engineer
Lighting Division

Report Reviewed By:

Handwritten signature of Jacki Swiernik in black ink.

Jacki Swiernik
Project Engineer
Lighting Division

Attachment: None