



FOR THE SCOPE OF
ACCREDITATION UNDER NVLAP LAB
CODE 100402-0.

REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G 100259678

Date: March 3, 2011

REPORT NO. 100259678CRT-003

TEST OF ONE LED MR16 LAMP

MODEL NO. AACMMR165060 (12 VAC)

RENDERED TO

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

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.

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 500267595.

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 one sample of model number AACMMR165060 (12 VAC) . The sample was received by Intertek on January 25, 2011, in undamaged condition, and one sample was tested as received. The sample designation was N10254L.

DATES OF TESTS: February 8, 2011 through February 28, 2011.

SUMMARY

Model No.: AACMMR165060 (12 VAC)
Description: LED MR16

Criteria	Result
Total Lumen Output	299.4 Lumens
Total Power	6.099 W
Luminaire Efficacy	49.09
Power Factor	0.758
Current ATHD	71.3 %
Correlated Color Temperature (CCT)	4998 K
Color Rendering Index (CRI)	94.1
Chromaticity Coordinate (x)	0.344
Chromaticity Coordinate (y)	0.342
Chromaticity Coordinate (u')	0.215
Chromaticity Coordinate (v')	0.480

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Calibration Date	Calibration Due Date
Xitron Power Analyzer	2503H	E235	04/09/10	04/09/11
Elgar AC Power Supply	CW1251	--	--	--
Yokogawa Power Analyzer	WT1600	E462	06/11/10	06/11/11
Labsphere Diode Array	DAS 1100	N714	Before Use	Before Use
Leeds & Northup Standard Resistor	Manganin	Y089	02/17/11	02/17/12
Data Precision Digital Voltmeter	3600	V124	02/17/11	02/17/12
Fluke Multimeter	45	M133	02/17/11	02/17/12
Fluke Temperature Meter	52	T801	06/11/10	06/11/11
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	---	150-14, 8043, 8830	03/17/10	03/17/11
NIST Spectral Flux Standard Source	RF1024	---	09/18/10	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.

Estimated Total Operating Time

<u>Model No.</u>	<u>Total Hours</u>
AACMMR165060 (12 VAC)	3

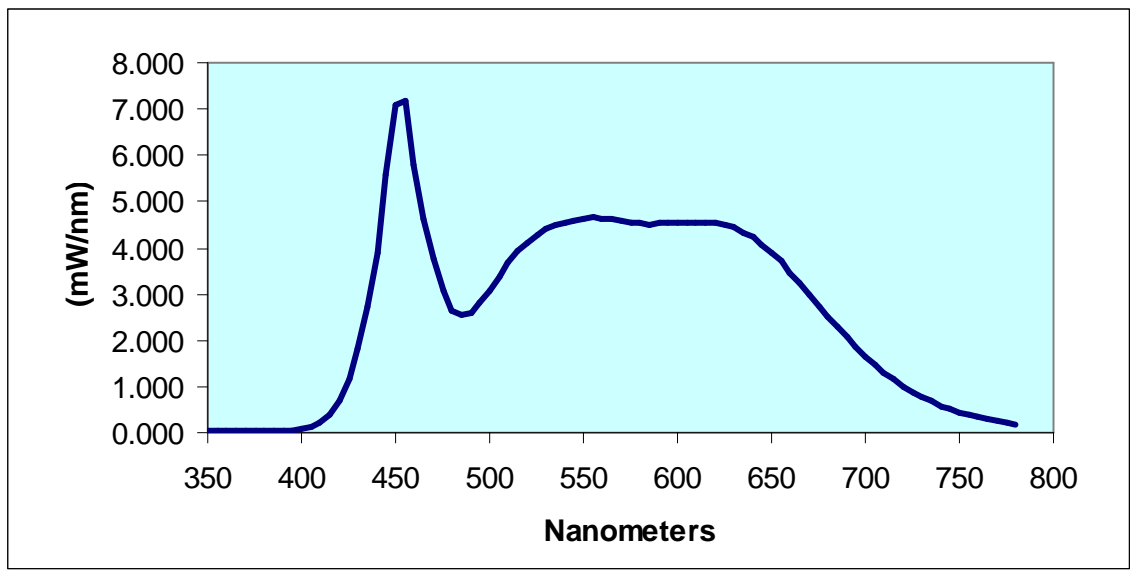


RESULTS OF TESTS

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
AACMMR165060 (12 VAC)							
350	0.046	460	5.797	570	4.588	680	2.518
355	0.056	465	4.613	575	4.553	685	2.292
360	0.042	470	3.764	580	4.522	690	2.077
365	0.048	475	3.054	585	4.519	695	1.864
370	0.051	480	2.628	590	4.525	700	1.661
375	0.050	485	2.532	595	4.532	705	1.479
380	0.049	490	2.591	600	4.536	710	1.302
385	0.051	495	2.798	605	4.553	715	1.150
390	0.048	500	3.088	610	4.541	720	1.012
395	0.056	505	3.388	615	4.552	725	0.886
400	0.076	510	3.681	620	4.557	730	0.774
405	0.120	515	3.914	625	4.500	735	0.675
410	0.209	520	4.116	630	4.435	740	0.580
415	0.386	525	4.280	635	4.330	745	0.508
420	0.684	530	4.415	640	4.218	750	0.440
425	1.155	535	4.500	645	4.067	755	0.383
430	1.815	540	4.561	650	3.891	760	0.332
435	2.706	545	4.585	655	3.704	765	0.287
440	3.879	550	4.631	660	3.478	770	0.248
445	5.567	555	4.653	665	3.237	775	0.215
450	7.090	560	4.646	670	2.990	780	0.185
455	7.167	565	4.612	675	2.739		

NEXXUS
Sample No. N10254L
Model No. AACMMR165060 (12 VAC)
Spectral Data Over Visible Wavelengths



RESULTS OF TESTS (cont'd)

Photometric Measurements at 25°C – Integrating Sphere Method

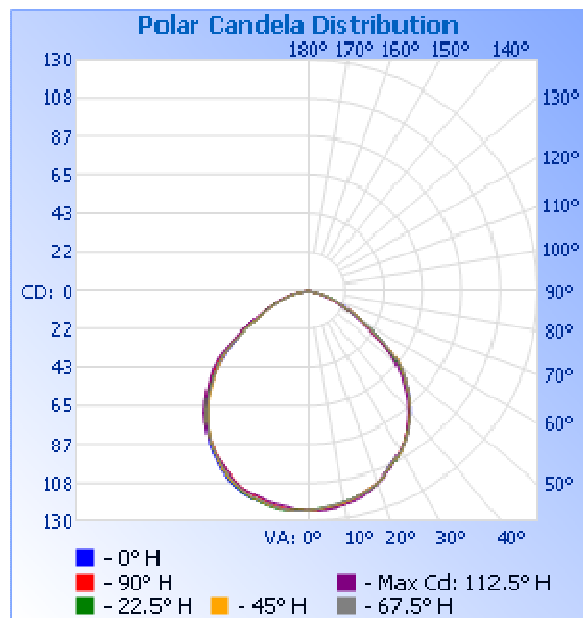
Intertek Sample No.	Current ATHD (%)	Correlated Color Temperature (K)	CRI	CIE 31' Chromaticity Coordinate	CIE 31' Chromaticity Coordinate	CIE 76' Chromaticity Coordinate	CIE 76' Chromaticity Coordinate
				(x)	(y)	(u')	(v')
AACMMR165060 (12 VAC)							
N10254L	71.30	4998	94.1	0.344	0.342	0.215	0.480

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)
AACMMR165060 (12 VAC)							
N10254L	UP	12.0	671.6	6.099	0.758	299.4	49.09

Intensity (Candlepower) Summary at 25°C - Candelas

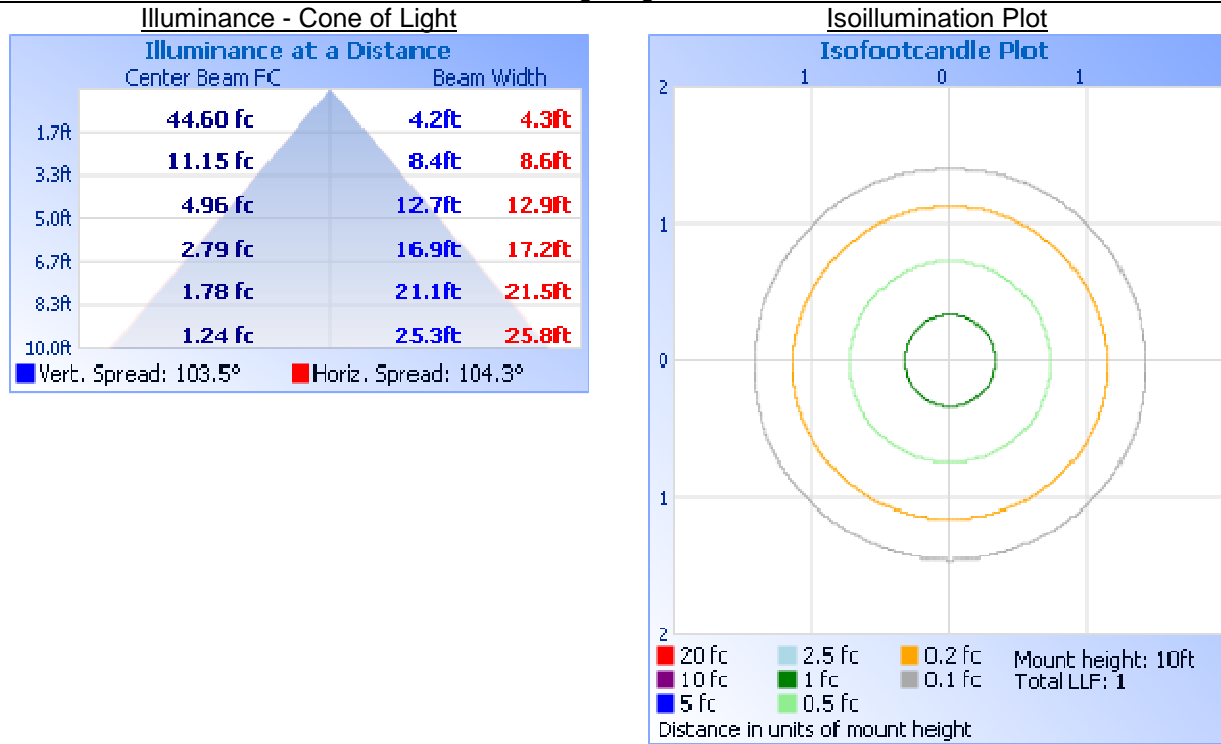
Angle	0	22.5	45	67.5	90
AACMMR165060 (12 VAC)					
0	124	124	124	124	124
5	123	122	123	122	123
10	121	121	122	121	122
15	118	118	118	118	118
20	115	116	115	115	115
25	110	110	110	110	110
30	105	105	105	105	104
35	98	98	98	98	97
40	90	90	90	90	89
45	80	80	80	80	79
50	68	69	69	70	68
55	56	55	56	55	53
60	35	37	36	37	36
65	26	25	26	26	26
70	17	17	17	18	16
75	9	11	11	10	11
80	4	4	4	4	3
85	0	0	0	1	0
90	0	0	0	0	0



RESULTS OF TESTS (cont'd)

Illumination Plots

Model No.: AACMMR165060 (12 VAC)
Mounting Height: 10 ft.



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
AACMMR165060 (12 VAC)		
0-30	96.3	32.2
0-40	157.2	52.5
0-60	264.2	88.2
60-90	35.2	11.8
0-90	299.4	100.0
90-180	0.0	0.0
0-180	299.4	100.0

Reflector Summary

	Efficiency (%)	Lumens	Horizontal Spread (°)	Vertical Spread (°)
AACMMR165060 (12 VAC)				
Field (10%):	97.7	292.7	144.7	144.5
Beam (50%):	76.4	228.7	104.3	103.5
Total:	100.0	299.4		

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:

A handwritten signature in black ink, appearing to read "S Mosier".

Steven Mosier
Technician I
Lighting Division

Attachment: None

Report Reviewed By:

A handwritten signature in black ink, appearing to read "Jacki Swiernik".

Jacki Swiernik
Project Engineer
Lighting Division