

VISUAL COMFORT & CO.

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

E4PSLRD-9308-W

PROJECT NUMBER

G104206403

REPORT NUMBER

104206403CHI-123

ISSUE DATE

8/5/2020

REVISED DATE

None

TEST DATES

07/27/2020 through 07/30/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104206403CHI-123

MODEL NUMBER(s)

E4PSLRD-9308-W

REPORT RENDERED TO:

VISUAL COMFORT & CO.
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USA

STATEMENT OF LIMITATION

NVLAP Lab Code 600186-0. 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-01040682-1.

TEST STANDARDS

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

ANSI NEMA ANSLG C78.377: 2017: Specifications for the Chromaticity of Solid State Lighting (SSL) Products

In Charge of Testing:



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Reviewer:



Jeff Davis
NA Technical Lead
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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH07242020122945-123	E4PSLRD-9308-W	E4PSL 85deg 400mA	Production	7/23/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	E4PSLRD-9308-W	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS

1



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	E4PSLRD-9308-W
Product Description:	E4PSL 85deg 400mA
LED Model No.:	Bridgelux BXRE-**E2000-C-83
Driver Model No.:	ERP 255ESS020W400
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	1290.0	1290.6
Input Power (W) @ 120 (Vac)	15.33	15.29
Lumen Efficacy (lm/W)	84.1	84.4
Input Power Factor (I) @ 120 (Vac)	0.989	0.989

Criteria	Results
Input ATHD (%) @ 120 (Vac)	10.60
Correlated Color Temperature (K)	3082
Color Rendering Index - Ra (I)	91.5
Color Rendering Index - R9 (I)	70.1
Duv (I)	0.0006
Chromaticity Coordinate (x)	0.432
Chromaticity Coordinate (y)	0.404
Chromaticity Coordinate (u')	0.248
Chromaticity Coordinate (v')	0.520

TEST METHODS

SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

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

INTEGRATING SPHERE TESTING

A spectroradiometer and integrating sphere were used to measure the spectral distribution for each EUT resulting in photometric and colorimetric data. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position inside the sphere and stabilization procedures to LM-79 were followed.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

A Type C Mirror Goniophotometer system was used to measure the luminous intensity (candela) at each angle of distribution for the EUT. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position near the EUT at equal height and stabilization procedures to LM-79 were followed.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	E4PSLRD-9308-W	NA

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)

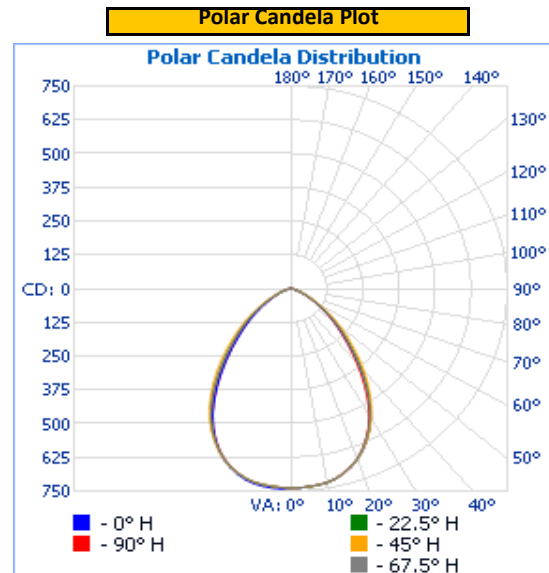
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.1	129.1	15.33	0.989

Light Output (lm)	Lumen Efficacy (lm/W)
1290.0	84.1

INTENSITY SUMMARY - CANDELA

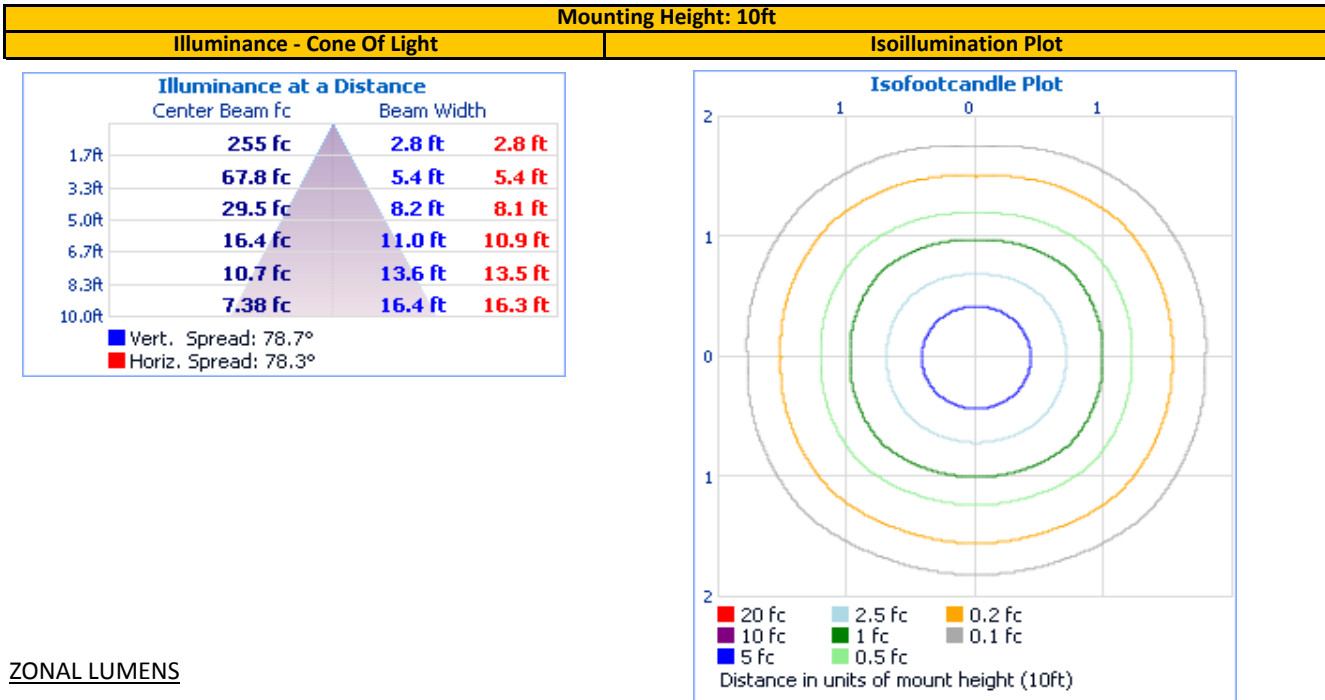
Angle	0	22.5	45	67.5	90
0	738	738	738	738	738
5	736	736	736	736	736
10	730	729	729	728	728
15	708	708	708	707	707
20	674	672	673	672	671
25	621	619	622	617	615
30	553	552	557	547	542
35	467	467	477	462	451
40	368	373	391	367	353
45	278	285	305	281	267
50	207	213	231	211	197
55	148	150	164	149	139
60	97	98	108	98	91
65	60	60	69	60	56
70	36	34	36	34	33
75	19	18	18	18	16
80	11	10	9	9	9
85	6	5	4	4	4
90	0	0	0	0	0
95	0	0	0	0	0
100	0	0	0	0	0
105	0	0	0	0	0
110	0	0	0	0	0
115	0	0	0	0	0
120	0	0	0	0	0
125	0	0	0	0	0
130	0	0	0	0	0
135	0	0	0	0	0
140	0	0	0	0	0
145	0	0	0	0	0
150	0	0	0	0	0
155	0	0	0	0	0
160	0	0	0	0	0
165	0	0	0	0	0
170	0	0	0	0	0
175	0	0	0	0	0
180	0	0	0	0	0

Entire luminous intensity matrix found in .IES file



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ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	552.7	42.8%	90-100	0.9	0.1%
0-40	842.3	65.3%	100-110	0.6	0.0%
0-60	1,201.5	93.1%	110-120	0.4	0.0%
60-90	88.4	6.9%	120-130	0.4	0.0%
70-100	25.7	2.0%	130-140	0.5	0.0%
90-120	0.0	0.0%	140-150	0.5	0.0%
0-90	1,290.0	100.0%	150-160	0.4	0.0%
90-180	0.0	0.0%	160-170	0.3	0.0%
0-180	1,290.0	100.0%	170-180	0.1	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	E4PSLRD-9308-W	NA

PHOTOMETRIC, COLORIMETRIC, AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)

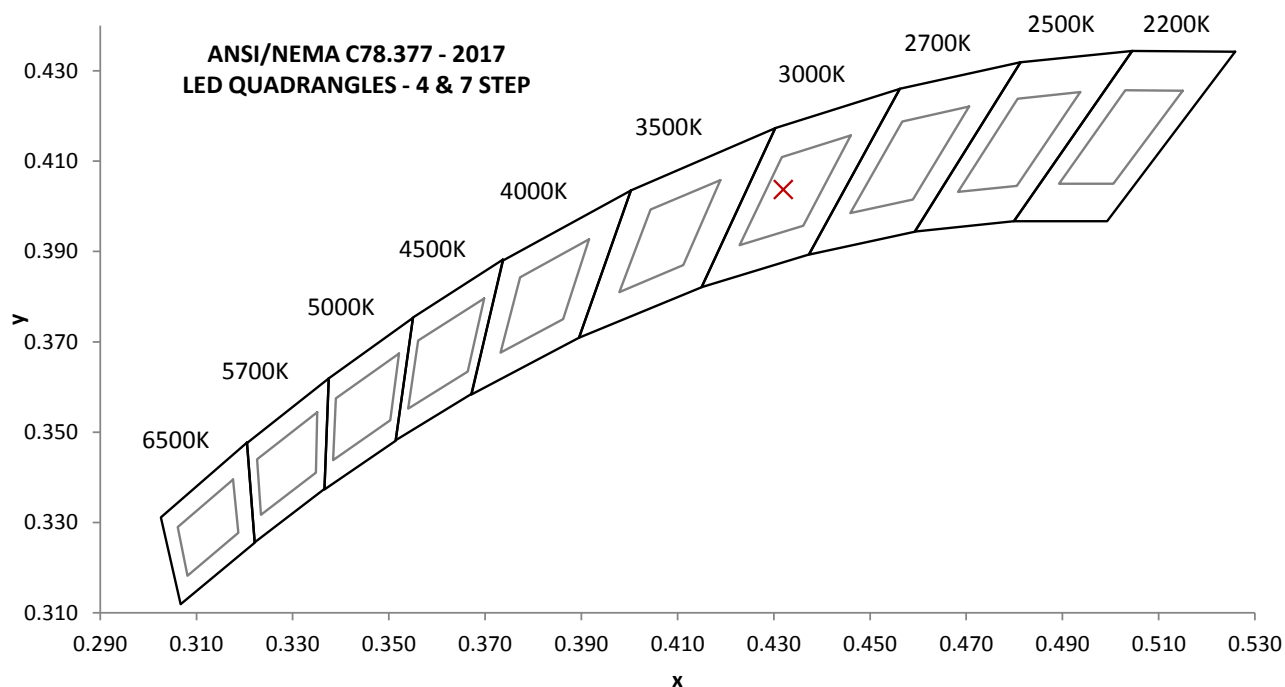
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
120.02	128.8	15.29	0.989	10.60

Measured at 120.02(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
1290.6	84.4	3082	91.5	70.1

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0006	0.432	0.404	0.248	0.520

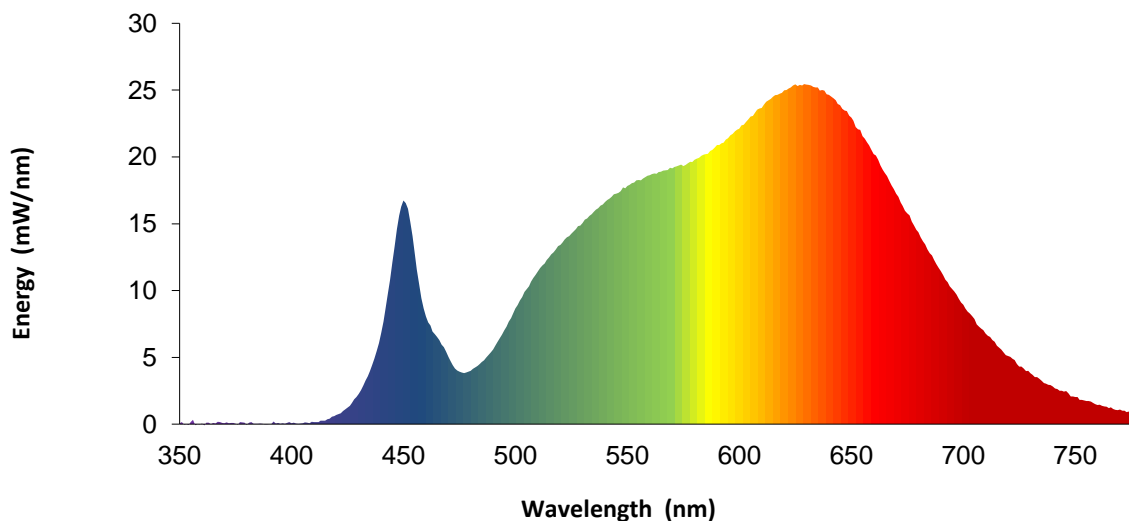


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	8.1		570	19.1		680	14.4
355	0.2		465	6.5		575	19.3		685	12.8
360	0.0		470	5.0		580	19.8		690	11.4
365	0.1		475	3.9		585	20.2		695	10.1
370	0.1		480	4.0		590	20.9		700	8.9
375	0.0		485	4.6		595	21.4		705	7.9
380	-0.1		490	5.6		600	22.1		710	6.8
385	0.0		495	7.0		605	23.0		715	5.9
390	0.0		500	8.7		610	23.7		720	5.1
395	0.0		505	10.1		615	24.5		725	4.3
400	0.1		510	11.4		620	25.0		730	3.8
405	0.1		515	12.5		625	25.4		735	3.3
410	0.1		520	13.4		630	25.4		740	2.8
415	0.3		525	14.3		635	25.2		745	2.4
420	0.7		530	15.0		640	24.6		750	2.0
425	1.2		535	15.9		645	23.9		755	1.7
430	2.3		540	16.6		650	22.9		760	1.4
435	3.9		545	17.3		655	21.5		765	1.2
440	6.8		550	17.8		660	20.2		770	1.1
445	12.1		555	18.3		665	18.8		775	0.8
450	16.7		560	18.6		670	17.3		780	0.8
455	12.7		565	18.9		675	15.8		---	---

Without correction of sample absorption.



Portrayed color in graphic is estimated by wavelength (nm) and may not be exact - it is a visual representation only

EQUIPMENT LIST

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#	Equipment	Model No	Control No.	Last Cal	Cal Due
1	Yokogawa Power Meter	WT210	146919	7/1/2020	7/1/2021
2	Omega Thermometer	DPI8-C24	146920	10/3/2019	10/3/2020
3	LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
4	Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
5	Pacific AC Power Supply	118-ACX	CHI0153	VBU	VBU
6	Newport Humidity Recorder	iTHX-SD	146961	7/26/2019	7/26/2020
7	Labsphere Spectroradiometer	CDS-600	146923	VBU	VBU
8	2M Rotating Sphere	7660-ROT	146923	VBU	VBU
9	Omega thermometer	USB TC08	EQAH002615	4/7/2020	4/7/2021
10	Ametek DC Power Supply	XFR150-8	1468464	VBU	VBU
11	Yokogawa Power Meter	WT210	146880	10/2/2019	10/2/2020
12	Chroma Power Supply	61604	CHI0371	VBU	VBU
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Note: Standard sources listed above are traceable to NIST: National Institute of Standards and Technology

REVISION HISTORY

#	Revision Date	Updated By	Reviewed By	Description of Change
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