

VISUAL COMFORT & CO.

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

E4PSLRD-9278-W

PROJECT NUMBER

G104206403

REPORT NUMBER

104206403CHI-121

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-121

MODEL NUMBER(s)

E4PSLRD-9278-W

REPORT RENDERED TO:

VISUAL COMFORT & CO.
7400 LINDER AVE.
SKOKIE, IL, 60077
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

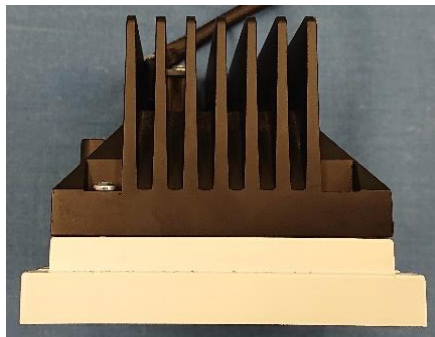
Item No.	Control No.	Model No.	Description	Type	Received
1	AH07242020122945-121	E4PSLRD-9278-W	E4PSL 85deg 400mA	Production	7/23/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	E4PSLRD-9278-W	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS

1



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	E4PSLRD-9278-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)	1222.2	1227.0
Input Power (W) @ 120 (Vac)	15.18	15.16
Lumen Efficacy (lm/W)	80.5	81.0
Input Power Factor (I) @ 120 (Vac)	0.989	0.989

Criteria	Results
Input ATHD (%) @ 120 (Vac)	10.71
Correlated Color Temperature (K)	2717
Color Rendering Index - Ra (I)	91.0
Color Rendering Index - R9 (I)	66.0
Duv (I)	0.0006
Chromaticity Coordinate (x)	0.460
Chromaticity Coordinate (y)	0.412
Chromaticity Coordinate (u')	0.262
Chromaticity Coordinate (v')	0.528

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-9278-W	NA

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

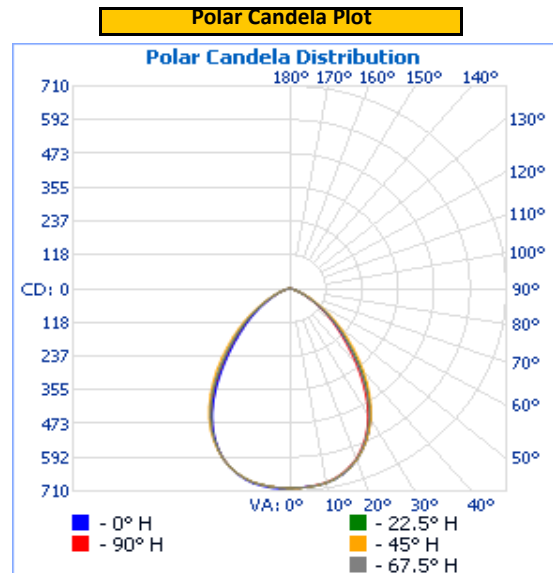
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.1	127.9	15.18	0.989

Light Output (lm)	Lumen Efficacy (lm/W)
1222.2	80.5

INTENSITY SUMMARY - CANDELA

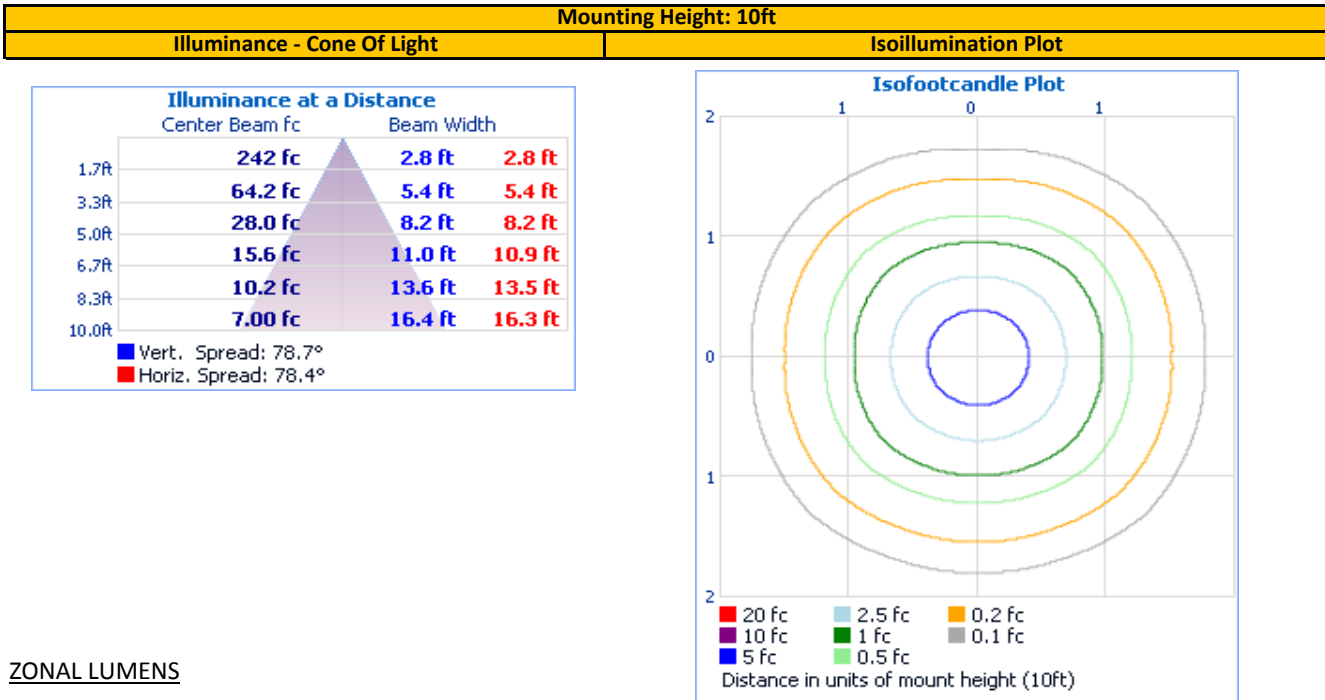
Angle	0	22.5	45	67.5	90
0	700	700	700	700	700
5	697	698	698	698	697
10	692	692	691	691	690
15	674	672	672	671	669
20	640	639	639	637	635
25	591	590	591	586	583
30	528	526	531	520	514
35	446	447	456	439	427
40	354	358	374	350	335
45	267	274	294	269	253
50	198	206	222	202	187
55	144	146	159	144	132
60	94	95	105	94	86
65	58	58	69	58	53
70	34	33	35	33	31
75	19	18	18	17	16
80	10	10	9	9	8
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					
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Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	523.5	42.8%	90-100	0.0	0.0%
0-40	797.8	65.3%	100-110	0.0	0.0%
0-60	1,138.4	93.1%	110-120	0.0	0.0%
60-90	83.7	6.9%	120-130	0.0	0.0%
70-100	24.3	2.0%	130-140	0.0	0.0%
90-120	0.0	0.0%	140-150	0.0	0.0%
0-90	1,222.2	100.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	160-170	0.0	0.0%
0-180	1,222.2	100.0%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

REPORT NO. 104206403CHI-121

Test Configuration	Tested Model No.	Pass/Fail/NA
1	E4PSLRD-9278-W	NA

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

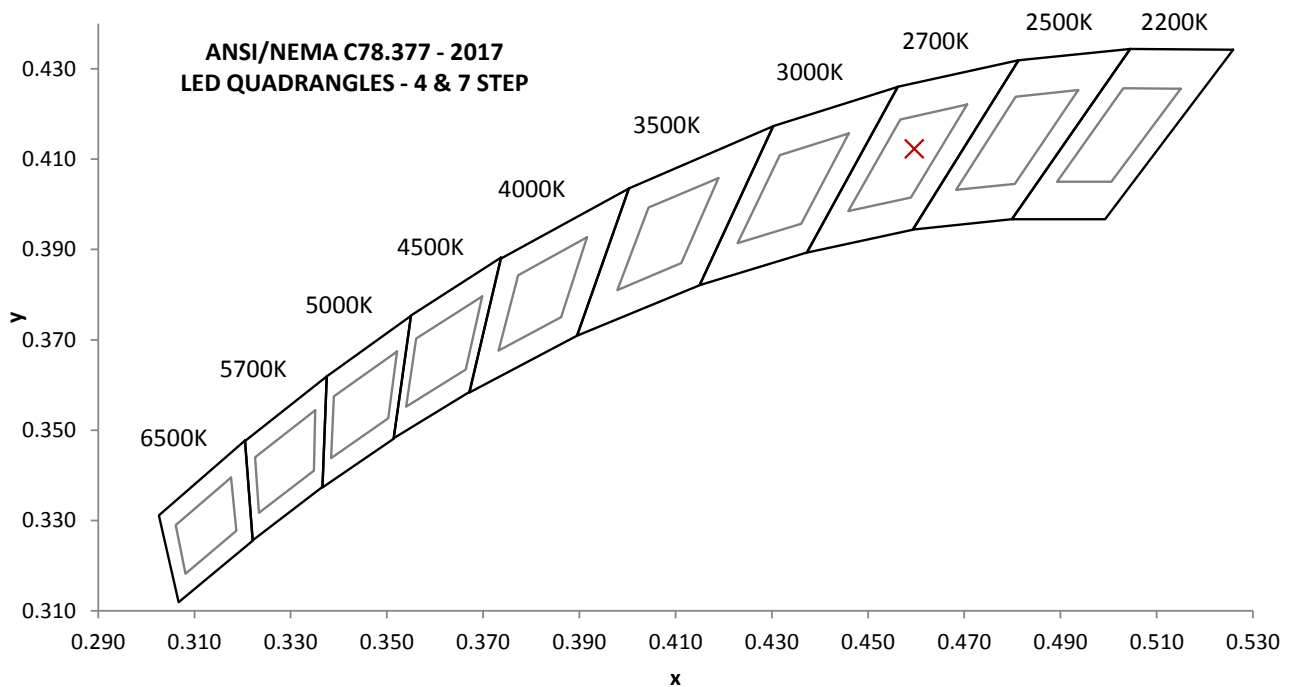
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
120.03	127.7	15.16	0.989	10.71

Measured at 120.03(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
1227.0	81.0	2717	91.0	66.0

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0006	0.460	0.412	0.262	0.528

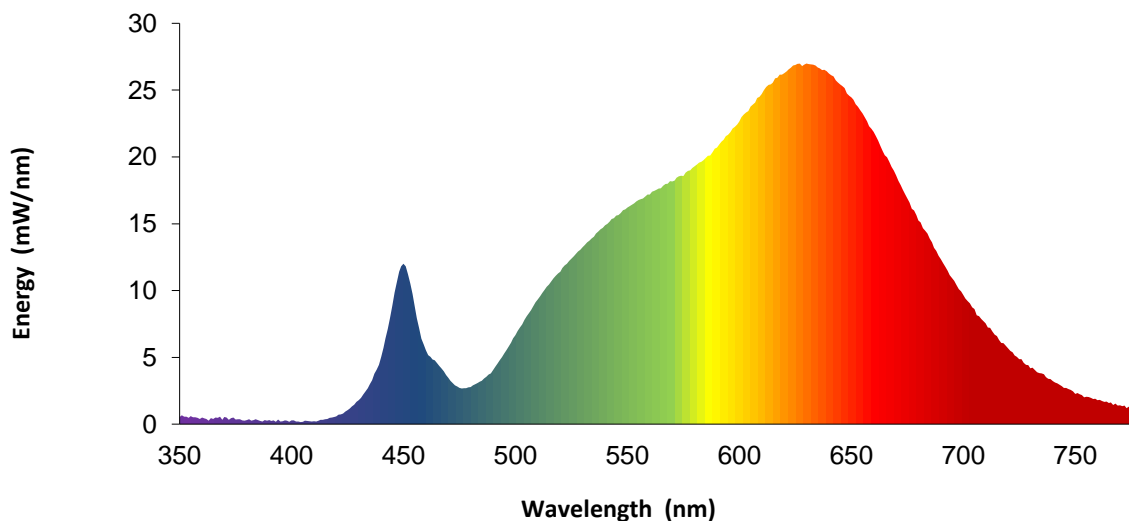


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.5		460	5.5		570	18.2		680	15.3
355	0.6		465	4.6		575	18.6		685	13.9
360	0.5		470	3.5		580	19.3		690	12.4
365	0.4		475	2.7		585	19.9		695	10.9
370	0.5		480	2.8		590	20.7		700	9.7
375	0.3		485	3.2		595	21.7		705	8.6
380	0.3		490	4.1		600	22.7		710	7.6
385	0.3		495	5.3		605	23.8		715	6.6
390	0.3		500	6.7		610	24.7		720	5.7
395	0.2		505	8.1		615	25.6		725	4.9
400	0.3		510	9.3		620	26.3		730	4.2
405	0.2		515	10.5		625	26.9		735	3.8
410	0.2		520	11.4		630	27.0		740	3.2
415	0.4		525	12.4		635	26.7		745	2.7
420	0.6		530	13.2		640	26.2		750	2.3
425	1.1		535	14.0		645	25.4		755	2.1
430	1.8		540	14.9		650	24.5		760	1.8
435	3.0		545	15.6		655	23.3		765	1.6
440	5.0		550	16.2		660	21.9		770	1.4
445	8.9		555	16.8		665	20.1		775	1.2
450	12.0		560	17.2		670	18.6		780	1.3
455	8.8		565	17.7		675	16.9		---	---

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	VBV	VBV
4	Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
5	Pacific AC Power Supply	118-ACX	CHI0153	VBV	VBV
6	Newport Humidity Recorder	iTHX-SD	146961	7/26/2019	7/26/2020
7	Labsphere Spectroradiometer	CDS-600	146923	VBV	VBV
8	2M Rotating Sphere	7660-ROT	146923	VBV	VBV
9	Omega thermometer	USB TC08	EQAH002615	4/7/2020	4/7/2021
10	Ametek DC Power Supply	XFR150-8	1468464	VBV	VBV
11	Yokogawa Power Meter	WT210	146880	10/2/2019	10/2/2020
12	Chroma Power Supply	61604	CHI0371	VBV	VBV
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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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