

VISUAL COMFORT & CO.

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

E4PSLRD-8408-W

PROJECT NUMBER

G104206403

REPORT NUMBER

104206403CHI-119

ISSUE DATE

8/5/2020

REVISED DATE

None

TEST DATES

07/27/2020 through 07/29/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104206403CHI-119

MODEL NUMBER(s)

E4PSLRD-8408-W

REPORT RENDERED TO:

VISUAL COMFORT & CO.
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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
Lighting Division

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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH07242020122945-119	E4PSLRD-8408-W	E4PSL 85deg 400mA	Production	7/23/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	E4PSLRD-8408-W	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	E4PSLRD-8408-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)	1597.5	1569.8
Input Power (W) @ 120 (Vac)	15.30	15.27
Lumen Efficacy (lm/W)	104.4	102.8
Input Power Factor (I) @ 120 (Vac)	0.989	0.989

Criteria	Results
Input ATHD (%) @ 120 (Vac)	10.78
Correlated Color Temperature (K)	3920
Color Rendering Index - Ra (I)	81.0
Color Rendering Index - R9 (I)	7.4
Duv (I)	0.0019
Chromaticity Coordinate (x)	0.385
Chromaticity Coordinate (y)	0.384
Chromaticity Coordinate (u')	0.226
Chromaticity Coordinate (v')	0.505

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-8408-W	NA

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

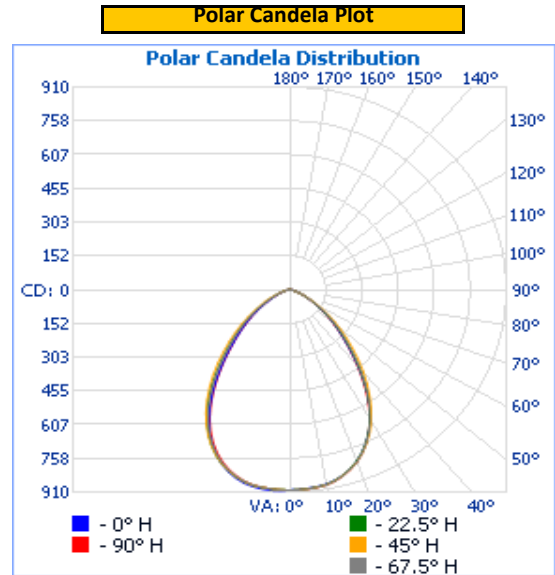
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.1	128.9	15.30	0.989

Light Output (lm)	Lumen Efficacy (lm/W)
1597.5	104.4

INTENSITY SUMMARY - CANDELA

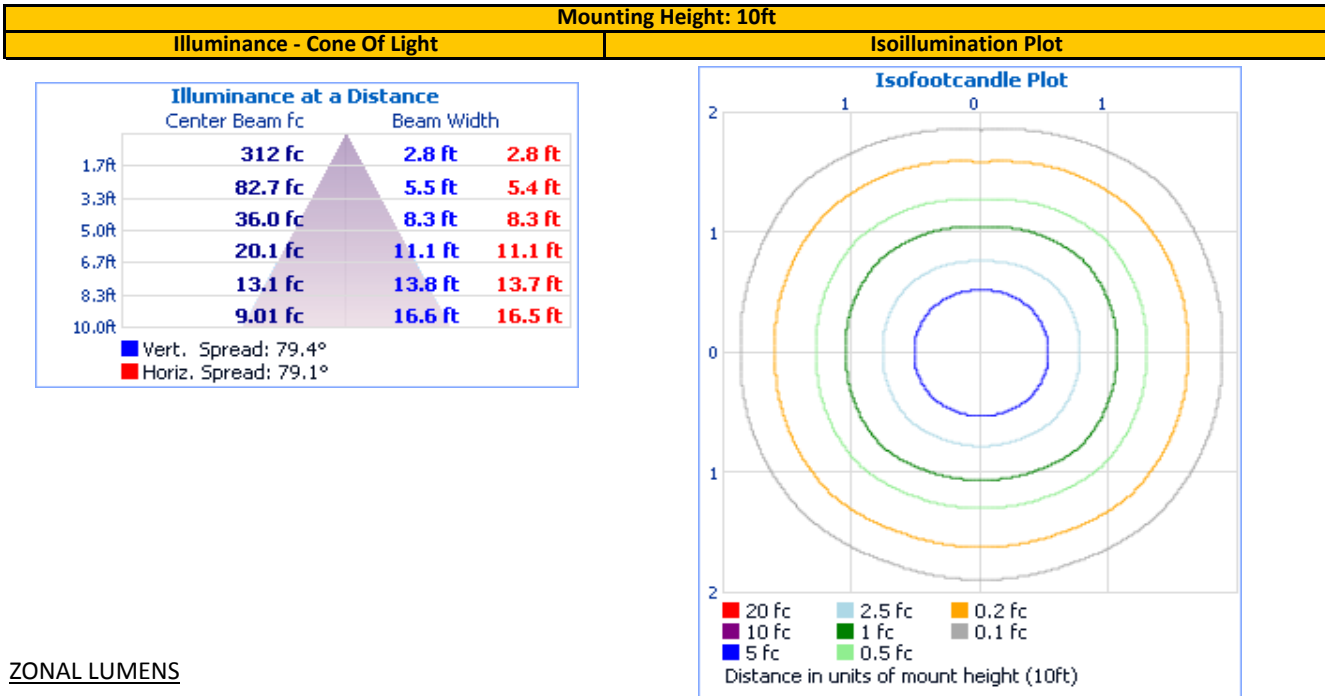
Angle	0	22.5	45	67.5	90
0	901	901	901	901	901
5	896	898	898	898	898
10	887	889	890	890	891
15	863	863	864	865	866
20	822	821	824	824	824
25	758	758	763	761	760
30	677	674	684	675	672
35	568	568	586	569	559
40	445	452	480	454	439
45	334	344	374	347	332
50	249	256	281	261	246
55	177	181	199	184	173
60	116	117	130	121	114
65	73	72	79	74	71
70	43	41	42	42	41
75	23	21	22	21	21
80	13	12	11	11	11
85	7	6	5	5	5
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	680.0	42.6%	90-100	0.0	0.0%
0-40	1,039.5	65.1%	100-110	0.0	0.0%
0-60	1,486.7	93.1%	110-120	0.0	0.0%
60-90	110.8	6.9%	120-130	0.0	0.0%
70-100	32.2	2.0%	130-140	0.0	0.0%
90-120	0.0	0.0%	140-150	0.0	0.0%
0-90	1,597.5	100.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	160-170	0.0	0.0%
0-180	1,597.5	100.0%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	E4PSLRD-8408-W	NA

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

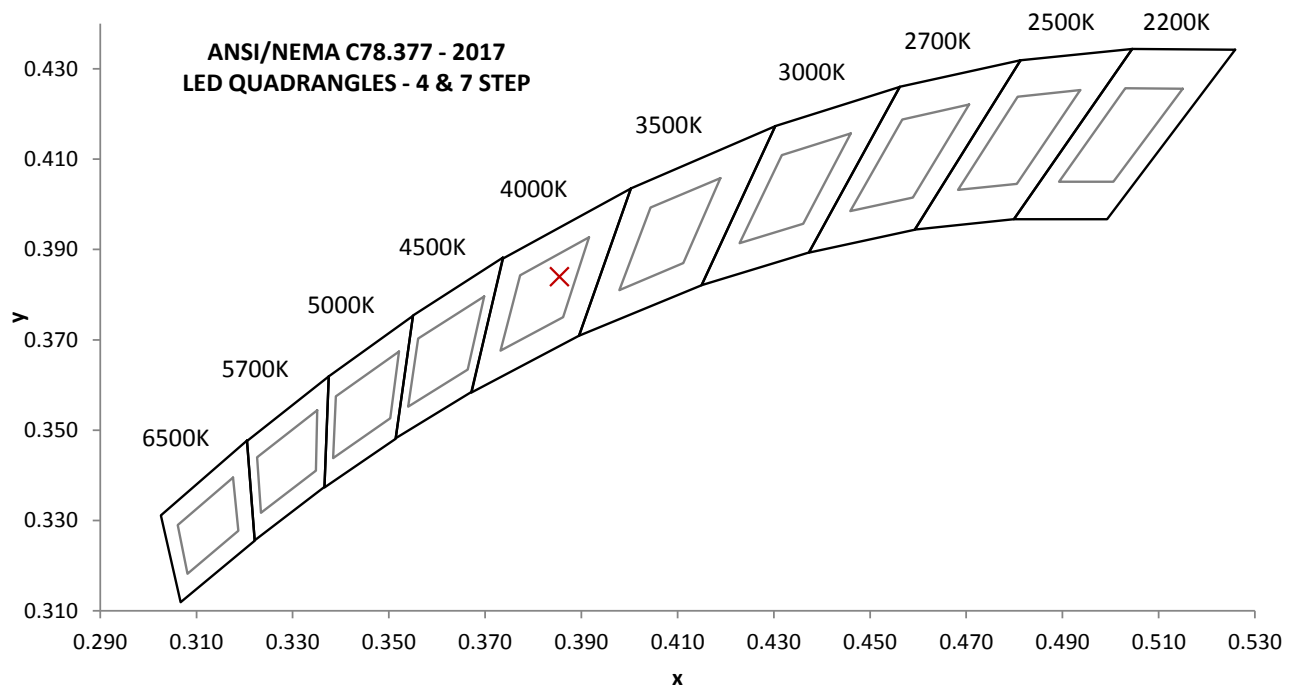
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
120.05	128.7	15.27	0.989	10.78

Measured at 120.05(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
1569.8	102.8	3920	81.0	7.4

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0019	0.385	0.384	0.226	0.505

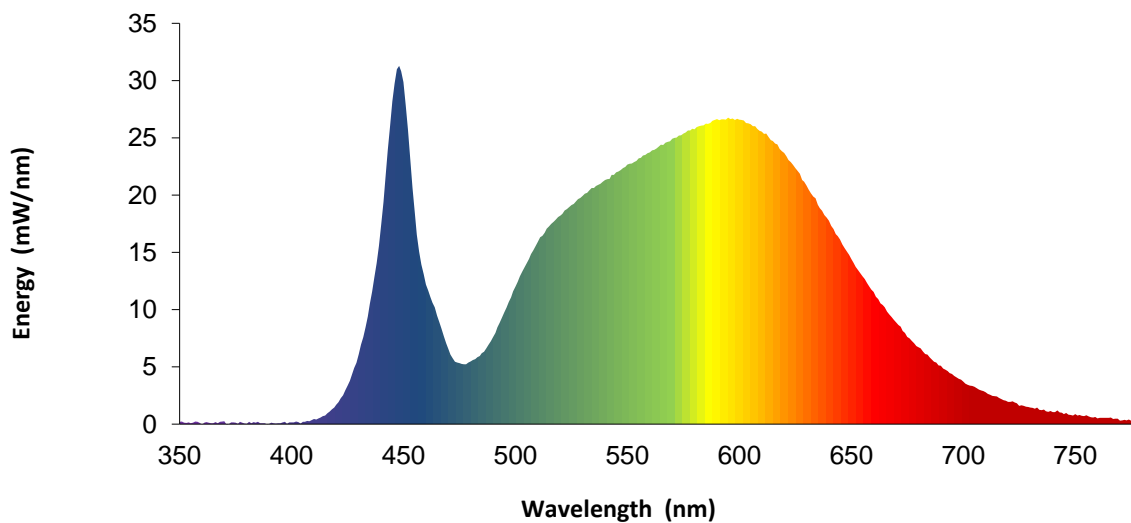


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.2		460	12.2		570	24.9		680	6.7
355	0.1		465	9.5		575	25.4		685	5.8
360	0.0		470	6.5		580	25.7		690	5.1
365	0.1		475	5.3		585	26.2		695	4.4
370	0.3		480	5.5		590	26.6		700	3.7
375	0.1		485	6.2		595	26.8		705	3.3
380	0.0		490	7.6		600	26.6		710	2.8
385	0.2		495	9.8		605	26.2		715	2.4
390	0.0		500	12.0		610	25.6		720	1.9
395	0.1		505	14.1		615	24.7		725	1.6
400	0.2		510	15.9		620	23.7		730	1.4
405	0.2		515	17.3		625	22.4		735	1.2
410	0.5		520	18.2		630	20.9		740	1.0
415	0.8		525	19.1		635	19.2		745	0.9
420	1.7		530	19.9		640	17.8		750	0.9
425	3.4		535	20.6		645	16.1		755	0.8
430	6.1		540	21.3		650	14.4		760	0.5
435	10.5		545	22.0		655	12.9		765	0.6
440	17.4		550	22.7		660	11.5		770	0.3
445	28.2		555	23.2		665	10.2		775	0.3
450	29.9		560	23.7		670	8.9		780	0.3
455	18.4		565	24.4		675	7.6		---	---

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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