

VISUAL COMFORT & CO.

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

E4PSLRD-8358-W

PROJECT NUMBER

G104206403

REPORT NUMBER

104206403CHI-117

ISSUE DATE

8/5/2020

REVISED DATE

None

TEST DATES

07/27/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104206403CHI-117

MODEL NUMBER(s)

E4PSLRD-8358-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
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SAMPLE INFORMATION

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ITEMS RECEIVED

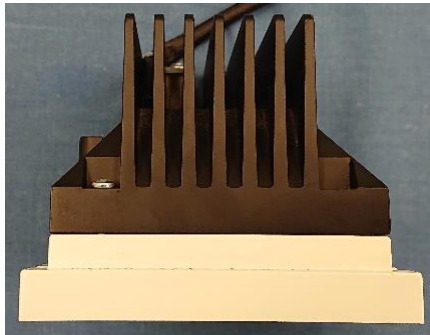
Item No.	Control No.	Model No.	Description	Type	Received
1	AH07242020122945-117	E4PSLRD-8358-W	E4PSL 85deg 400mA	Production	7/23/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	E4PSLRD-8358-W	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS

1



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	E4PSLRD-8358-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)	1584.6	1591.1
Input Power (W) @ 120 (Vac)	15.382	15.34
Lumen Efficacy (lm/W)	103.0	103.7
Input Power Factor (I) @ 120 (Vac)	0.989	0.989

Criteria	Results
Input ATHD (%) @ 120 (Vac)	10.64
Correlated Color Temperature (K)	3468
Color Rendering Index - Ra (I)	81.6
Color Rendering Index - R9 (I)	8.7
Duv (I)	0.0008
Chromaticity Coordinate (x)	0.408
Chromaticity Coordinate (y)	0.394
Chromaticity Coordinate (u')	0.236
Chromaticity Coordinate (v')	0.513

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-8358-W	NA

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

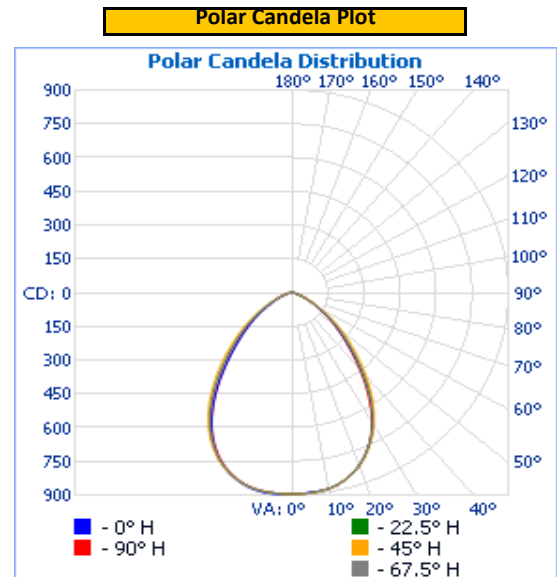
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.1	129.5	15.382	0.989

Light Output (lm)	Lumen Efficacy (lm/W)
1584.6	103.0

INTENSITY SUMMARY - CANDELA

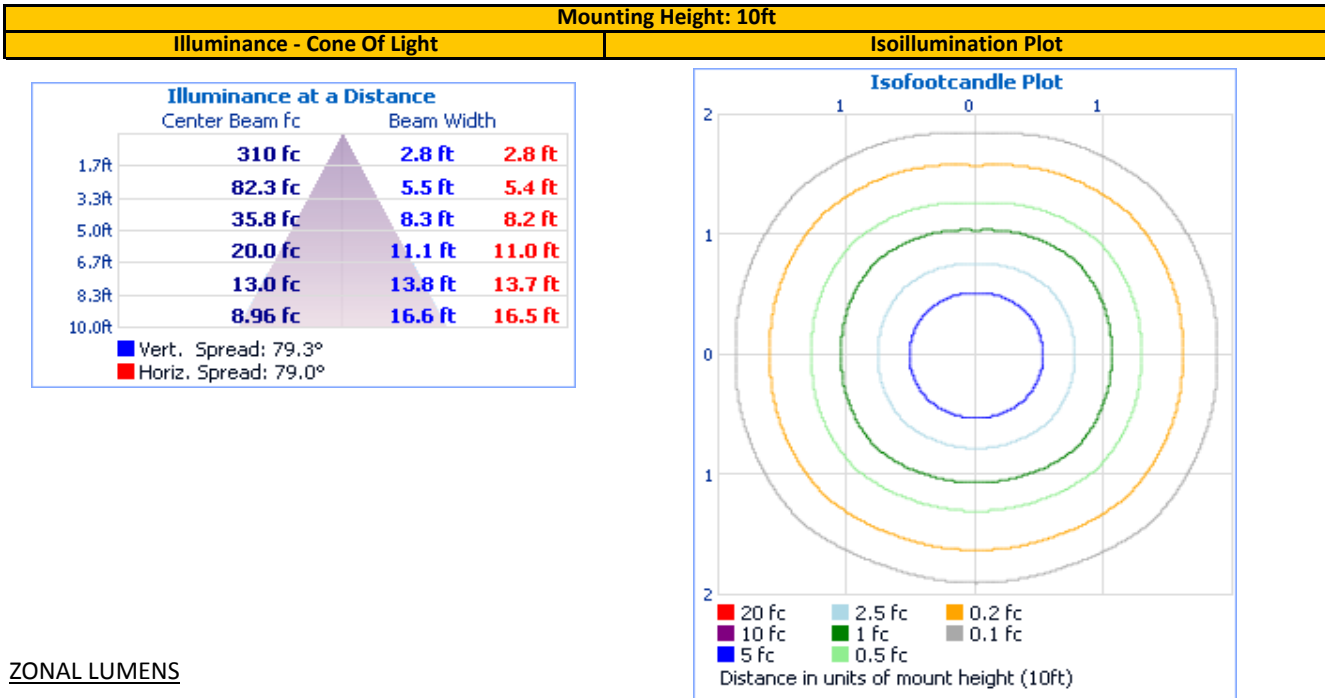
Angle	0	22.5	45	67.5	90
0	896	896	896	896	896
5	891	893	893	893	893
10	884	885	885	885	885
15	860	860	861	860	860
20	819	817	820	819	818
25	756	755	760	756	754
30	676	672	682	672	666
35	570	569	585	566	555
40	449	454	480	452	436
45	338	347	375	347	329
50	252	259	283	261	244
55	182	183	200	185	173
60	119	119	132	122	113
65	74	73	86	75	70
70	44	41	44	43	41
75	24	22	22	22	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	674.8	42.6%	90-100	0.0	0.0%
0-40	1,031.1	65.1%	10-20	242.3	15.3%
0-60	1,474.6	93.1%	20-30	347.5	21.9%
60-90	110.1	6.9%	30-40	356.3	22.5%
70-100	32.0	2.0%	40-50	274.1	17.3%
90-120	0.0	0.0%	50-60	169.4	10.7%
0-90	1,584.6	100.0%	60-70	78.0	4.9%
90-180	0.0	0.0%	70-80	25.6	1.6%
0-180	1,584.6	100.0%	80-90	6.5	0.4%
			90-100	0.0	0.0%
			100-110	0.0	0.0%
			110-120	0.0	0.0%
			120-130	0.0	0.0%
			130-140	0.0	0.0%
			140-150	0.0	0.0%
			150-160	0.0	0.0%
			160-170	0.0	0.0%
			170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	E4PSLRD-8358-W	NA

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

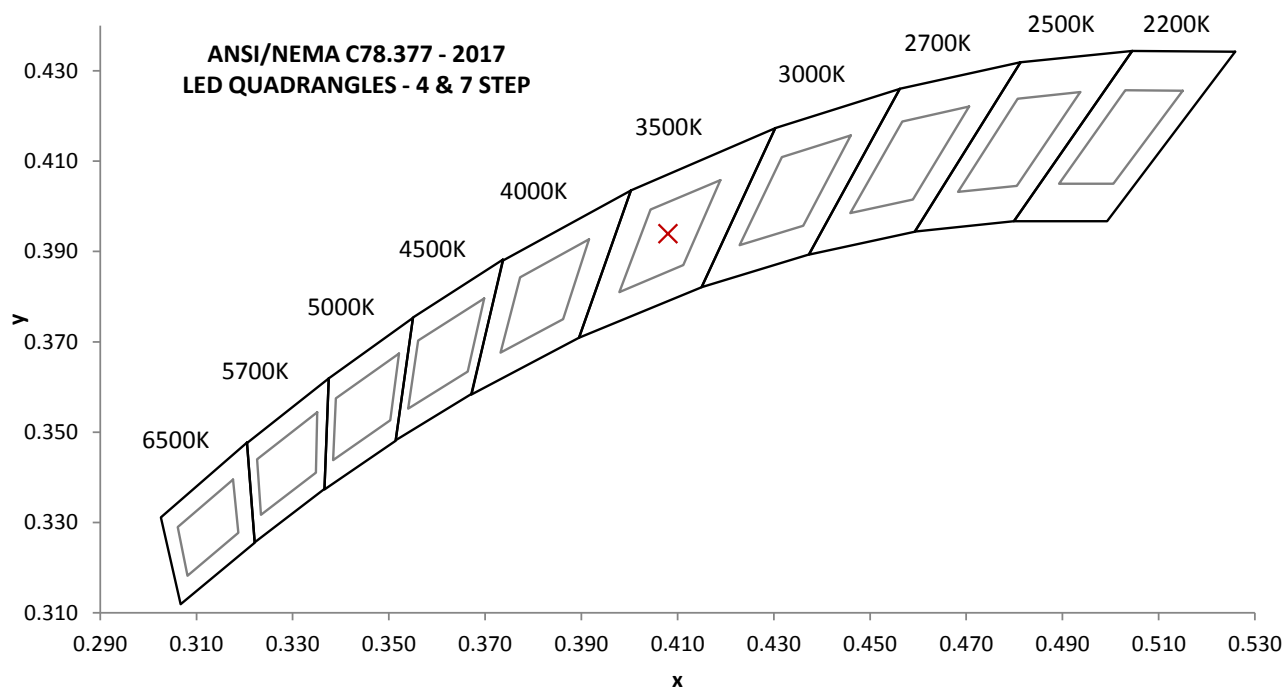
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
120.04	129.2	15.34	0.989	10.64

Measured at 120.04(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
1591.1	103.7	3468	81.6	8.7

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0008	0.408	0.394	0.236	0.513

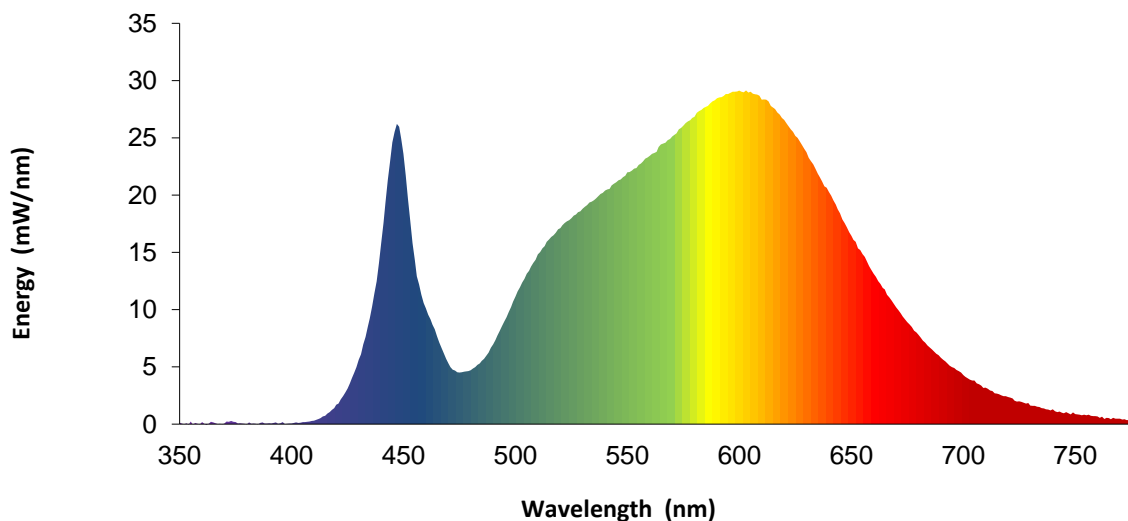


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	10.1		570	25.1		680	7.8
355	0.2		465	7.7		575	26.1		685	6.7
360	0.2		470	5.3		580	26.8		690	5.8
365	0.1		475	4.5		585	27.7		695	5.0
370	0.0		480	4.7		590	28.4		700	4.3
375	0.2		485	5.5		595	28.8		705	3.8
380	0.0		490	7.0		600	29.1		710	3.2
385	0.0		495	8.9		605	29.0		715	2.7
390	0.1		500	11.1		610	28.3		720	2.4
395	0.1		505	13.1		615	27.7		725	2.0
400	0.1		510	14.8		620	26.6		730	1.6
405	0.2		515	16.1		625	25.2		735	1.4
410	0.3		520	17.1		630	23.8		740	1.3
415	0.7		525	18.0		635	21.9		745	1.0
420	1.7		530	18.8		640	20.3		750	0.9
425	3.1		535	19.5		645	18.4		755	0.8
430	5.6		540	20.4		650	16.4		760	0.7
435	9.3		545	21.1		655	14.9		765	0.5
440	15.8		550	22.0		660	13.1		770	0.5
445	24.6		555	22.6		665	11.8		775	0.3
450	23.6		560	23.4		670	10.2		780	0.3
455	14.3		565	24.4		675	8.9		---	---

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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