

VISUAL COMFORT & CO.

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

E4PSLRD-8358-W

PROJECT NUMBER

G104206403

REPORT NUMBER

104206403CHI-118

ISSUE DATE

8/5/2020

REVISED DATE

None

TEST DATES

07/29/2020 through 08/04/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104206403CHI-118

MODEL NUMBER(s)

E4PSLRD-8358-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
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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH07242020122945-118	E4PSLRD-8358-W	E4PSL 85deg 700mA	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 700mA
LED Model No.:	Bridgelux BXRE-**E2000-C-83
Driver Model No.:	ERP 255ESS020W700
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	2668.7	2644.8
Input Power (W) @ 120 (Vac)	27.82	27.72
Lumen Efficacy (lm/W)	95.9	95.4
Input Power Factor (I) @ 120 (Vac)	0.985	0.985

Criteria	Results
Input ATHD (%) @ 120 (Vac)	12.33
Correlated Color Temperature (K)	3505
Color Rendering Index - Ra (I)	81.2
Color Rendering Index - R9 (I)	7.5
Duv (I)	0.0005
Chromaticity Coordinate (x)	0.406
Chromaticity Coordinate (y)	0.392
Chromaticity Coordinate (u')	0.235
Chromaticity Coordinate (v')	0.512

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)

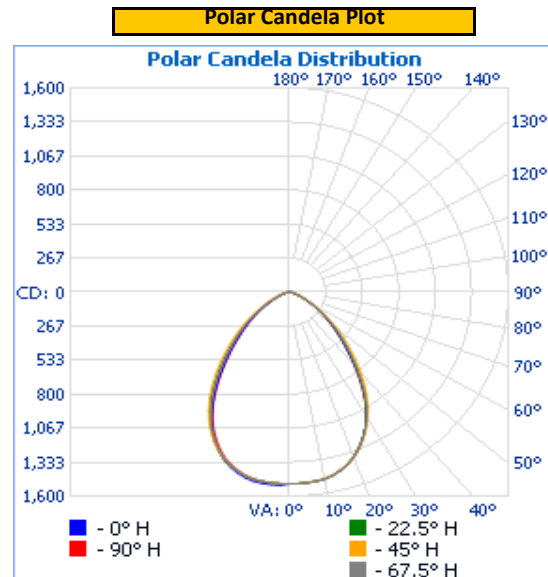
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.0	235.3	27.82	0.985

Light Output (lm)	Lumen Efficacy (lm/W)
2668.7	95.9

INTENSITY SUMMARY - CANDELA

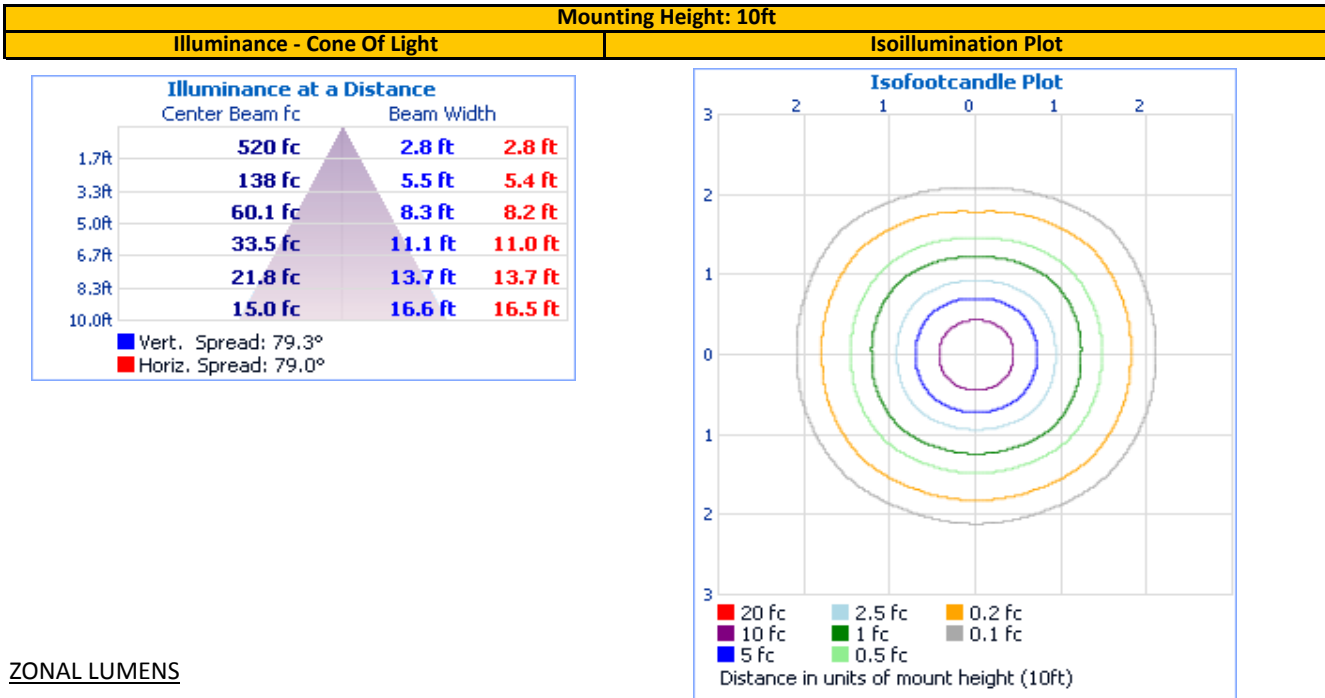
Angle	0	22.5	45	67.5	90
0	1503	1503	1503	1503	1503
5	1498	1498	1499	1499	1500
10	1487	1485	1486	1487	1488
15	1445	1444	1445	1446	1448
20	1374	1373	1377	1376	1379
25	1266	1266	1275	1270	1269
30	1128	1127	1144	1131	1123
35	948	949	984	954	935
40	740	752	803	759	733
45	556	574	626	583	555
50	416	426	470	436	410
55	298	302	329	308	291
60	194	196	217	202	190
65	120	119	132	123	117
70	70	68	70	70	68
75	37	35	36	36	34
80	21	19	18	18	18
85	11	10	8	8	8
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	1,136.3	42.6%	90-100	0.0	0.0%
0-40	1,737.7	65.1%	100-110	0.0	0.0%
0-60	2,484.6	93.1%	110-120	0.0	0.0%
60-90	184.1	6.9%	120-130	0.0	0.0%
70-100	53.2	2.0%	130-140	0.0	0.0%
90-120	0.0	0.0%	140-150	0.0	0.0%
0-90	2,668.7	100.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	160-170	0.0	0.0%
0-180	2,668.7	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-8358-W	NA

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

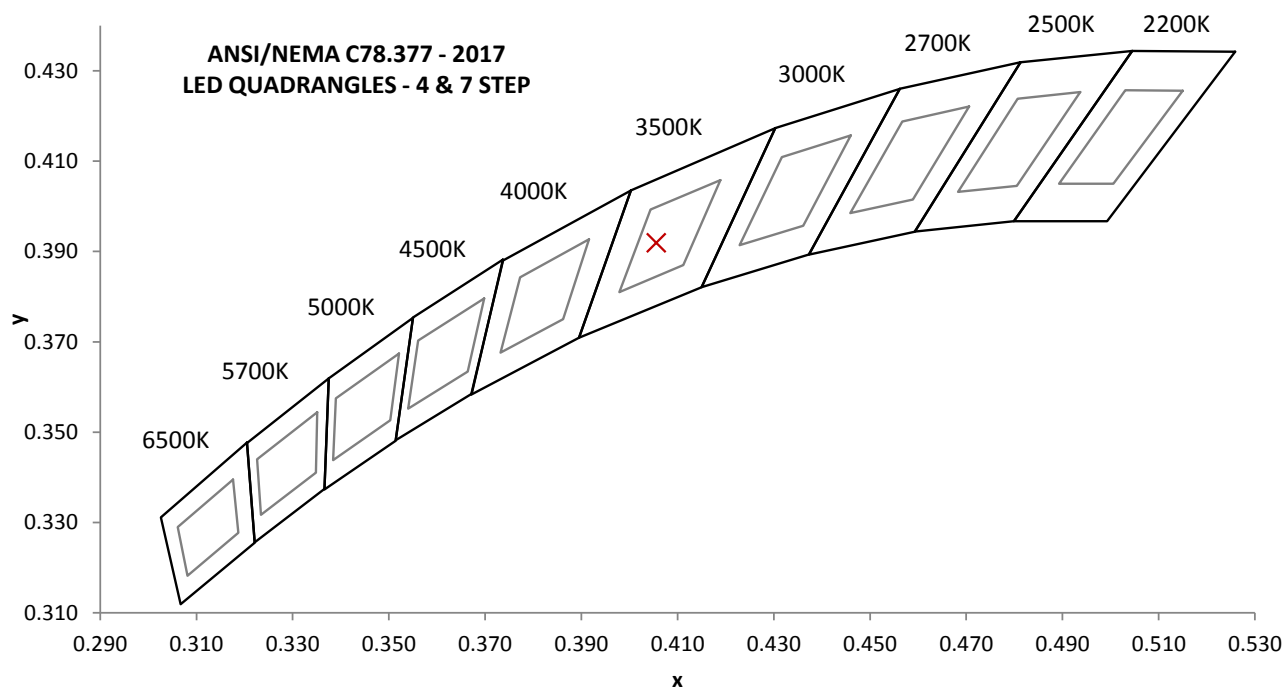
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
119.99	234.5	27.72	0.985	12.33

Measured at 119.99(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
2644.8	95.4	3505	81.2	7.5

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0005	0.406	0.392	0.235	0.512

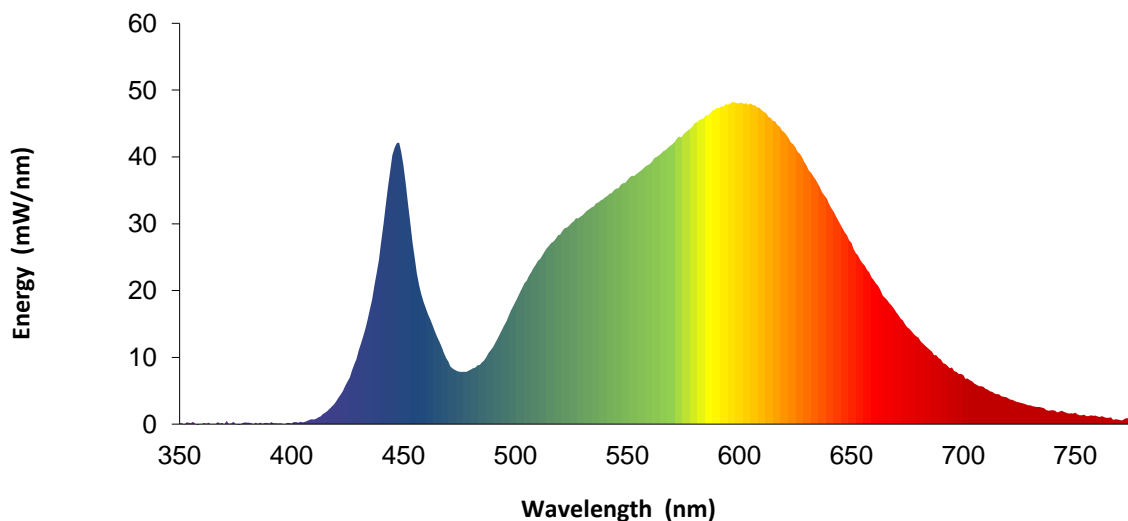


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	17.3		570	41.9		680	13.0
355	0.1		465	13.1		575	43.4		685	11.1
360	0.1		470	9.4		580	45.0		690	9.7
365	0.1		475	7.8		585	46.3		695	8.5
370	-0.1		480	8.1		590	47.4		700	7.3
375	0.0		485	9.2		595	47.8		705	6.1
380	0.2		490	11.6		600	48.0		710	5.3
385	0.1		495	14.8		605	48.0		715	4.5
390	0.1		500	18.3		610	47.0		720	3.9
395	0.1		505	21.5		615	45.4		725	3.2
400	0.1		510	24.4		620	43.7		730	2.8
405	0.3		515	26.7		625	41.5		735	2.5
410	0.7		520	28.4		630	38.8		740	2.1
415	1.7		525	30.1		635	36.0		745	1.8
420	3.4		530	31.3		640	33.0		750	1.7
425	6.4		535	32.6		645	30.0		755	1.2
430	11.0		540	34.0		650	27.2		760	1.1
435	17.1		545	35.3		655	24.1		765	1.0
440	27.3		550	36.5		660	21.6		770	0.6
445	40.3		555	37.7		665	18.9		775	0.5
450	38.8		560	38.9		670	16.8		780	0.5
455	24.8		565	40.5		675	14.5		---	---

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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