

VISUAL COMFORT & CO.

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

E4PSLRD-9358-W

PROJECT NUMBER

G104206403

REPORT NUMBER

104206403CHI-126

ISSUE DATE

8/5/2020

REVISED DATE

None

TEST DATES

07/30/2020 through 08/04/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104206403CHI-126

MODEL NUMBER(s)

E4PSLRD-9358-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	AH07242020122945-126	E4PSLRD-9358-W	E4PSL 85deg 700mA	Production	7/23/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	E4PSLRD-9358-W	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS

1



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	E4PSLRD-9358-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)	2179.5	2242.8
Input Power (W) @ 120 (Vac)	27.41	27.32
Lumen Efficacy (lm/W)	79.5	82.1
Input Power Factor (I) @ 120 (Vac)	0.984	0.984

Criteria	Results
Input ATHD (%) @ 120 (Vac)	12.71
Correlated Color Temperature (K)	3460
Color Rendering Index - Ra (I)	91.9
Color Rendering Index - R9 (I)	72.8
Duv (I)	0.0000
Chromaticity Coordinate (x)	0.408
Chromaticity Coordinate (y)	0.392
Chromaticity Coordinate (u')	0.237
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-9358-W	NA

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

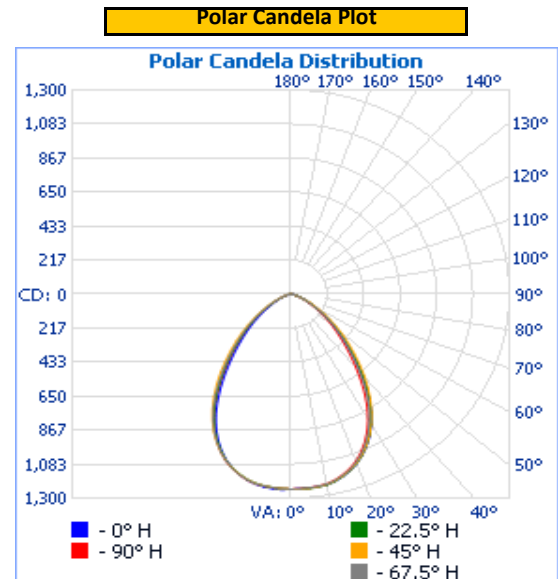
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.0	232.2	27.41	0.984

Light Output (lm)	Lumen Efficacy (lm/W)
2179.5	79.5

INTENSITY SUMMARY - CANDELA

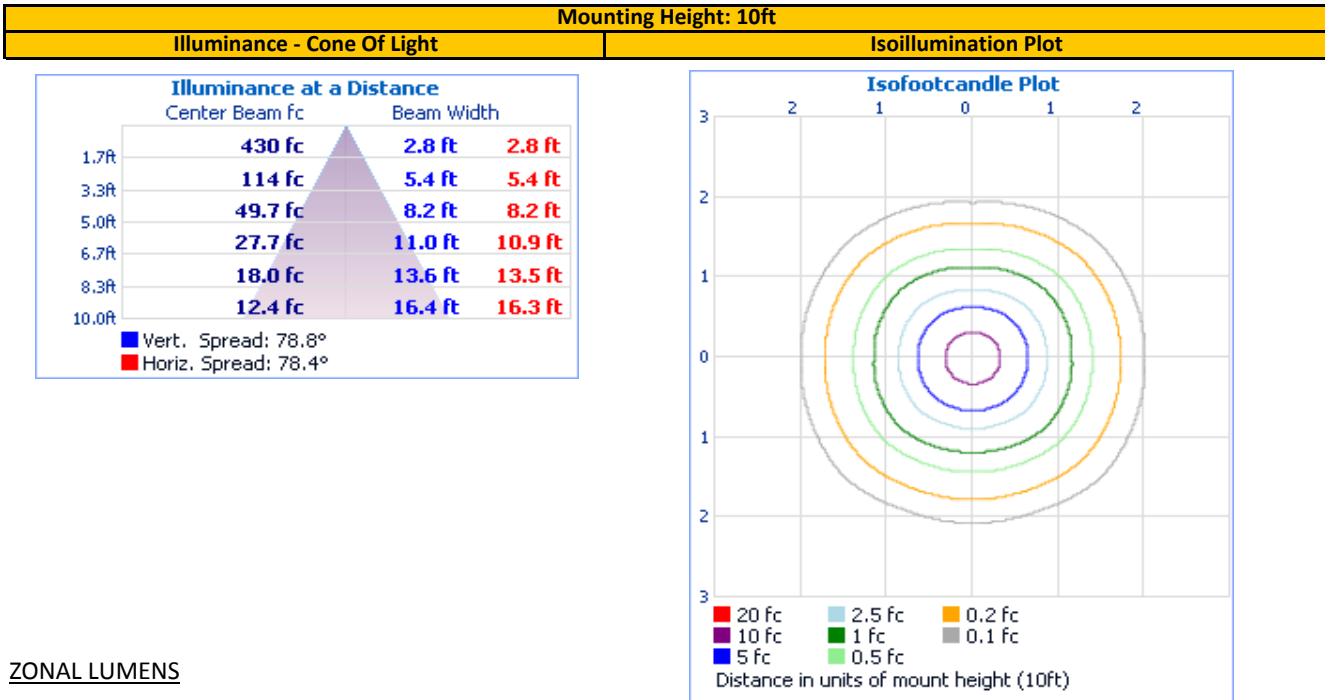
Angle	0	22.5	45	67.5	90
0	1242	1242	1242	1242	1242
5	1240	1242	1241	1239	1238
10	1232	1233	1231	1229	1227
15	1201	1201	1198	1194	1190
20	1148	1147	1144	1137	1132
25	1066	1064	1064	1050	1039
30	960	955	958	934	917
35	816	817	827	791	762
40	646	657	681	631	595
45	491	505	534	485	452
50	367	379	405	364	334
55	267	271	290	260	235
60	177	179	193	171	154
65	111	110	126	105	95
70	66	63	65	60	55
75	37	35	33	31	28
80	20	18	17	16	15
85	12	10	8	7	7
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	932.9	42.8%	90-100	0.0	0.0%
0-40	1,423.2	65.3%	100-110	0.0	0.0%
0-60	2,030.4	93.2%	110-120	0.0	0.0%
60-90	149.0	6.8%	120-130	0.0	0.0%
70-100	43.2	2.0%	130-140	0.0	0.0%
90-120	0.0	0.0%	140-150	0.0	0.0%
0-90	2,179.5	100.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	160-170	0.0	0.0%
0-180	2,179.5	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-9358-W	NA

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

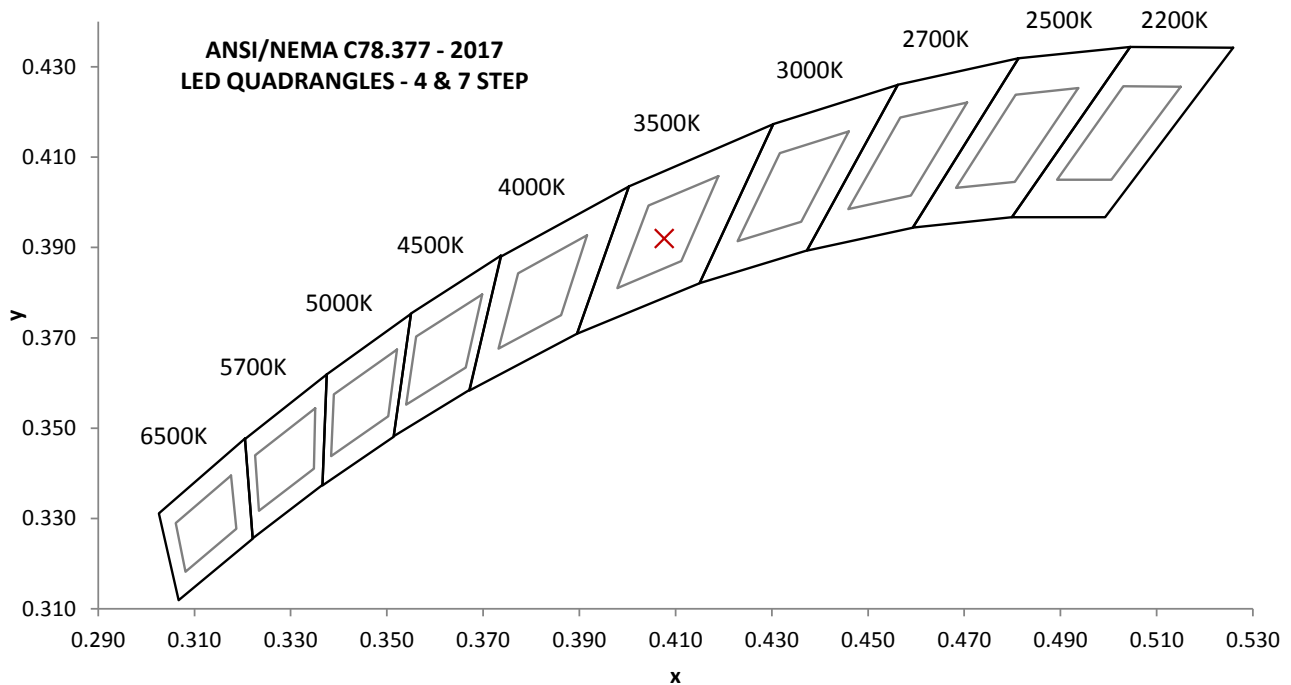
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
119.99	231.5	27.32	0.984	12.71

Measured at 119.99(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
2242.8	82.1	3460	91.9	72.8

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0000	0.408	0.392	0.237	0.512

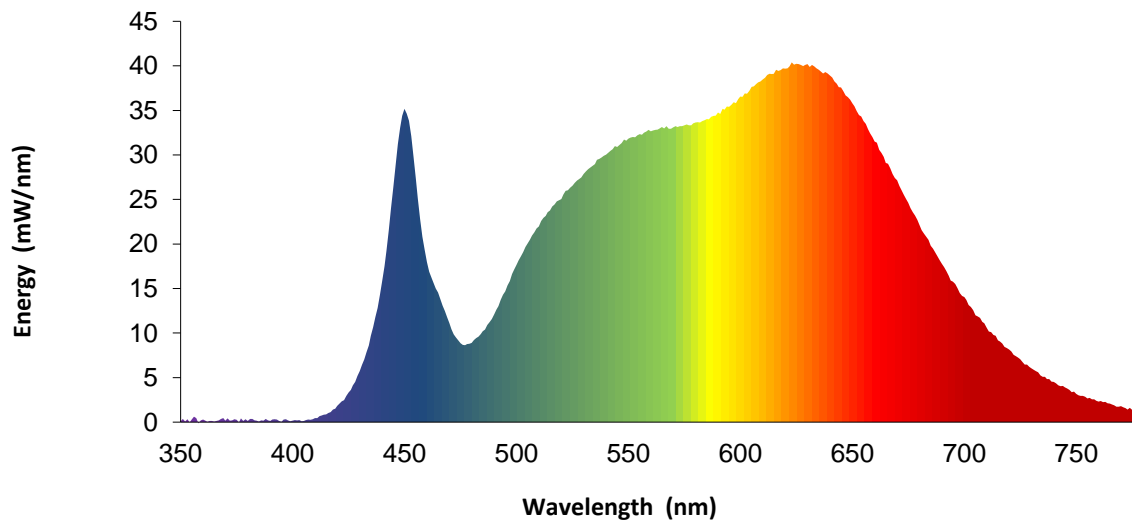


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	18.0		570	33.1		680	22.2
355	0.3		465	14.6		575	33.3		685	19.8
360	0.3		470	11.1		580	33.6		690	17.8
365	0.1		475	8.9		585	34.0		695	15.8
370	0.2		480	8.9		590	34.7		700	14.0
375	0.3		485	10.2		595	35.4		705	12.0
380	0.1		490	12.1		600	36.6		710	10.6
385	0.1		495	14.7		605	37.7		715	9.2
390	0.1		500	17.6		610	38.5		720	8.2
395	0.0		505	20.1		615	39.1		725	7.1
400	0.2		510	22.0		620	39.7		730	6.1
405	0.1		515	23.8		625	40.2		735	5.1
410	0.5		520	25.1		630	40.2		740	4.5
415	0.9		525	26.5		635	39.6		745	3.9
420	1.8		530	27.8		640	38.9		750	3.2
425	3.3		535	29.0		645	37.6		755	2.7
430	5.7		540	30.0		650	35.8		760	2.3
435	9.7		545	30.9		655	33.8		765	2.1
440	15.9		550	31.8		660	31.5		770	1.8
445	26.4		555	32.3		665	29.1		775	1.4
450	35.2		560	32.7		670	27.2		780	1.3
455	27.3		565	33.1		675	24.6		---	---

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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