

# VISUAL COMFORT & CO.

## TEST REPORT

### SCOPE OF WORK

LED Performance Testing

### MODEL NUMBER

E4PSLRD-8408-W

### PROJECT NUMBER

G104206403

### REPORT NUMBER

104206403CHI-120

### 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

© 2017 INTERTEK



**REPORT NUMBER**

104206403CHI-120

**MODEL NUMBER(s)**

E4PSLRD-8408-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:



Ian Smith  
Engineer  
Lighting Division

Reviewer:



Jeff Davis  
NA Technical Lead  
Lighting Division

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

## SAMPLE INFORMATION

REPORT NO. 104206403CHI-120

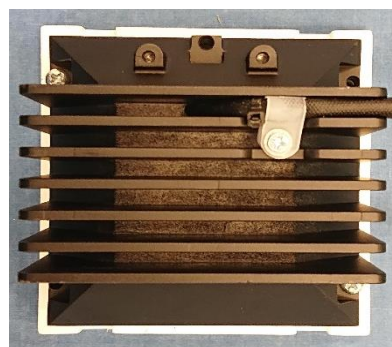
### ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH07242020122945-120	E4PSLRD-8408-W	E4PSL 85deg 700mA	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

REPORT NO. 104206403CHI-120

### PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	E4PSLRD-8408-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)	2666.0	2652.5
Input Power (W) @ 120 (Vac)	27.62	27.52
Lumen Efficacy (lm/W)	96.5	96.4
Input Power Factor (I) @ 120 (Vac)	0.984	0.984

Criteria	Results
Input ATHD (%) @ 120 (Vac)	12.52
Correlated Color Temperature (K)	3970
Color Rendering Index - Ra (I)	80.7
Color Rendering Index - R9 (I)	6.5
Duv (I)	0.0014
Chromaticity Coordinate (x)	0.383
Chromaticity Coordinate (y)	0.381
Chromaticity Coordinate (u')	0.225
Chromaticity Coordinate (v')	0.504

## 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**

**REPORT NO. 104206403CHI-120**

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

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

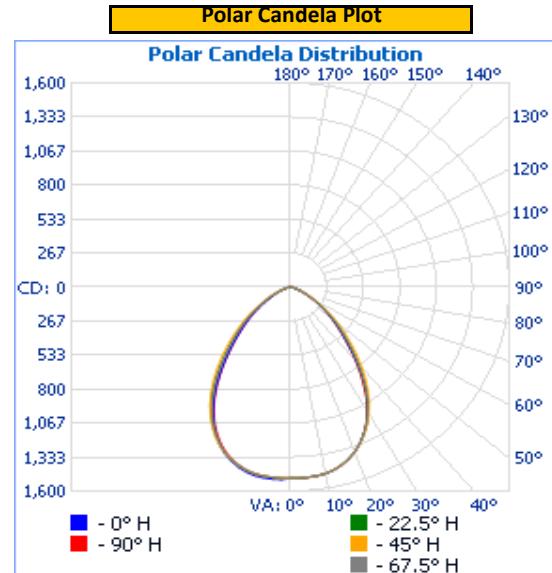
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ( )
Up	120.0	233.8	27.62	0.984

Light Output (lm)	Lumen Efficacy (lm/W)
2666.0	96.5

**INTENSITY SUMMARY - CANDELA**

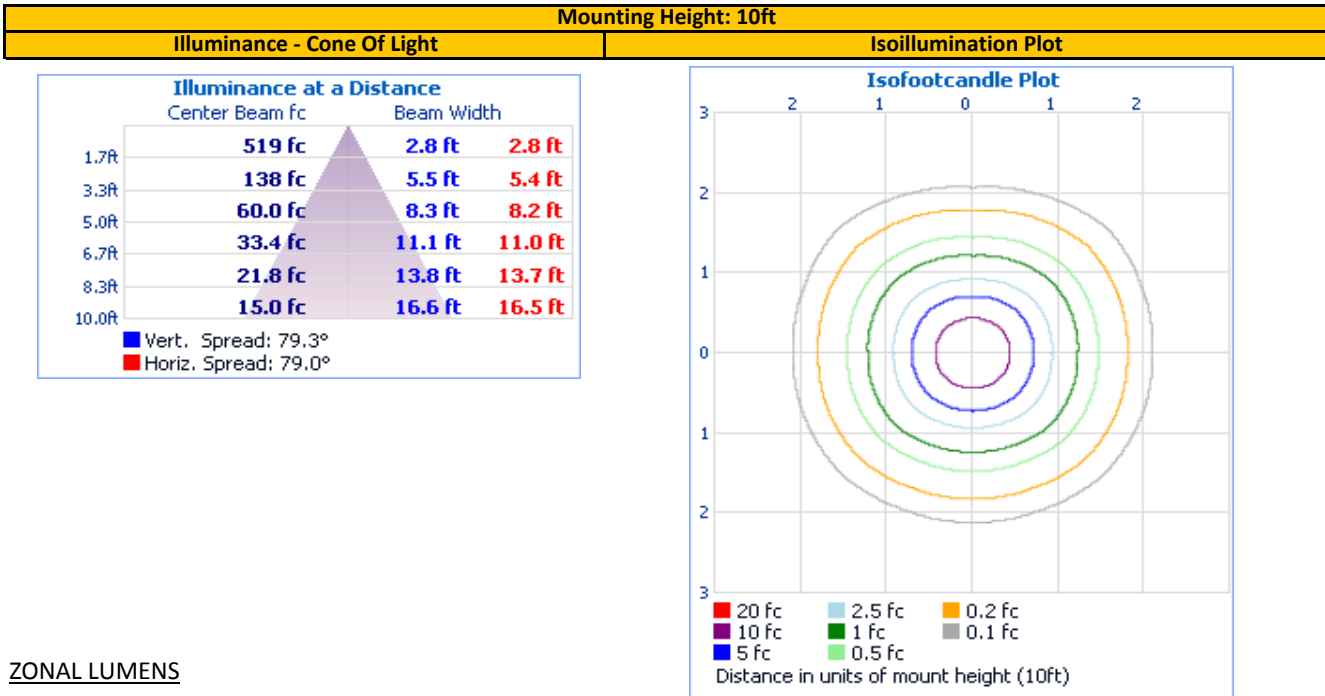
Angle	0	22.5	45	67.5	90
0	1500	1500	1500	1500	1500
5	1495	1496	1496	1496	1497
10	1483	1484	1484	1484	1485
15	1443	1442	1442	1444	1445
20	1375	1374	1376	1374	1376
25	1271	1270	1276	1269	1268
30	1134	1133	1145	1130	1120
35	955	957	986	955	934
40	746	760	807	761	733
45	560	580	628	583	553
50	419	431	472	437	411
55	300	305	333	309	290
60	198	200	219	203	190
65	124	122	134	124	118
70	72	70	72	70	68
75	38	37	37	36	34
80	22	20	19	18	18
85	12	10	9	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



**REPORT NO. 104206403CHI-120**

ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	1,134.8	42.6%	90-100	0.0	0.0%
0-40	1,736.1	65.1%	10-20	407.0	15.3%
0-60	2,482.2	93.1%	20-30	585.2	21.9%
60-90	183.9	6.9%	30-40	601.3	22.6%
70-100	53.1	2.0%	40-50	461.7	17.3%
90-120	0.0	0.0%	50-60	284.4	10.7%
0-90	2,666.0	100.0%	60-70	130.8	4.9%
90-180	0.0	0.0%	70-80	42.4	1.6%
0-180	2,666.0	100.0%	80-90	10.6	0.4%
			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**

**REPORT NO. 104206403CHI-120**

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

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

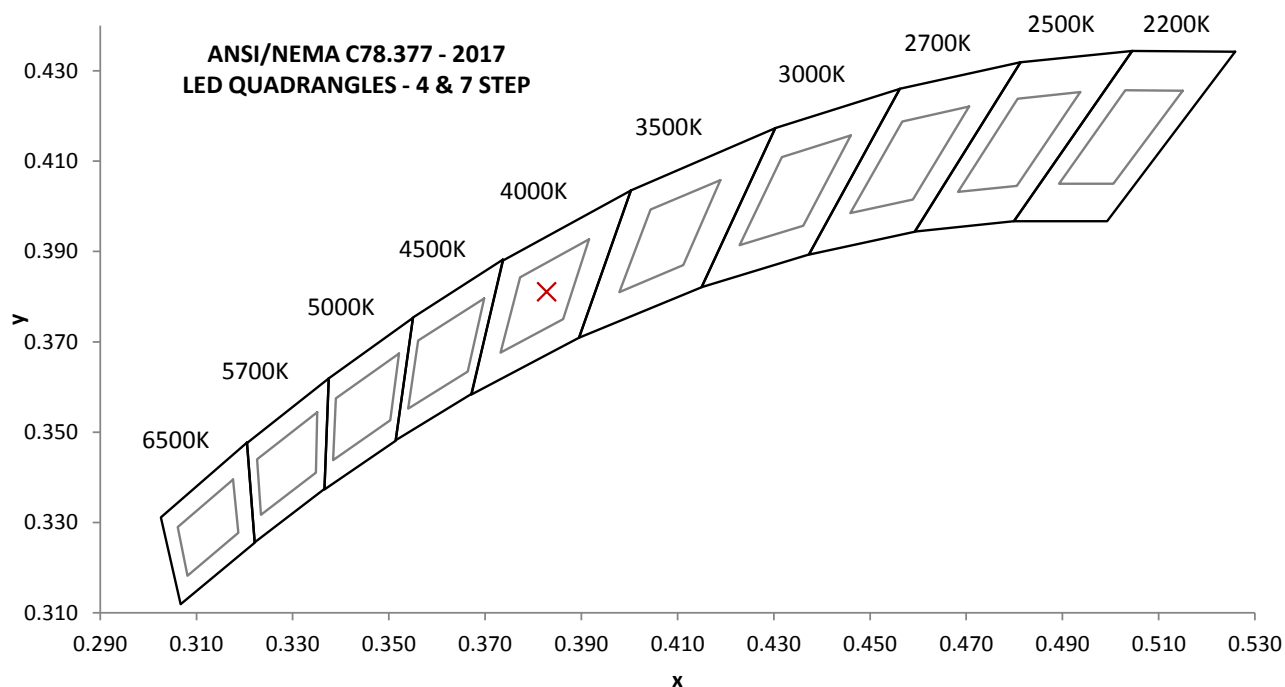
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ( )	Input ATHD (%)
119.98	233.1	27.52	0.984	12.52

Measured at 119.98(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ( )	CRI - R9 ( )
2652.5	96.4	3970	80.7	6.5

Duv ( )	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0014	0.383	0.381	0.225	0.504

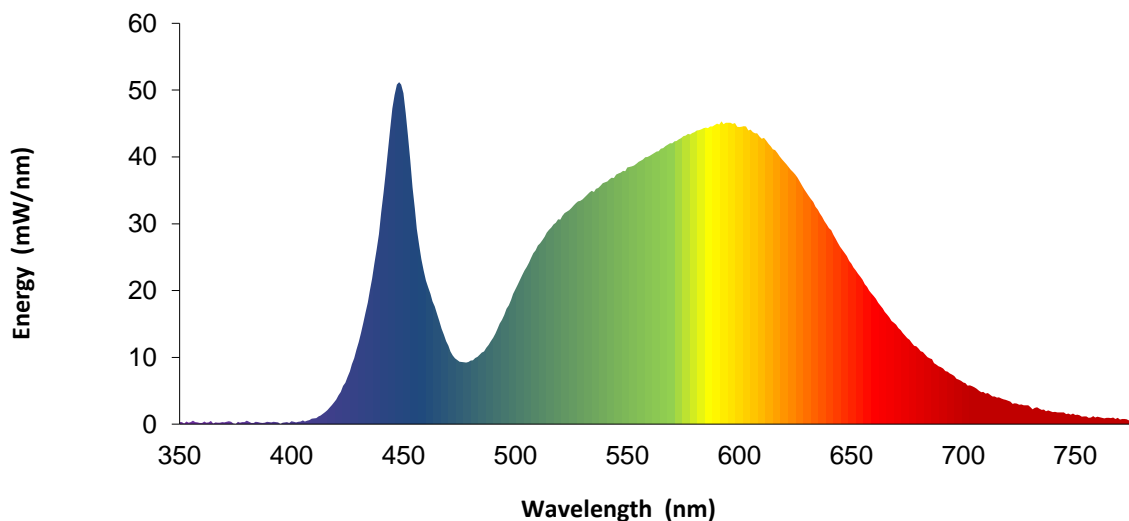


**REPORT NO. 104206403CHI-120**

SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.3		460	21.5		570	42.1		680	11.4
355	0.3		465	16.5		575	43.1		685	9.8
360	0.2		470	11.7		580	43.7		690	8.5
365	0.1		475	9.3		585	44.4		695	7.4
370	0.3		480	9.5		590	45.0		700	6.2
375	0.0		485	10.7		595	45.1		705	5.5
380	0.5		490	12.9		600	44.5		710	4.6
385	0.3		495	16.3		605	44.1		715	4.0
390	0.3		500	20.2		610	42.7		720	3.5
395	0.0		505	23.5		615	41.1		725	2.9
400	0.4		510	26.7		620	39.3		730	2.6
405	0.6		515	29.1		625	37.4		735	2.1
410	0.8		520	30.6		630	34.7		740	1.8
415	1.8		525	32.4		635	32.1		745	1.7
420	3.7		530	33.6		640	29.4		750	1.4
425	7.1		535	34.7		645	26.6		755	1.2
430	12.3		540	36.2		650	24.0		760	1.1
435	19.9		545	37.4		655	21.6		765	1.0
440	31.7		550	38.4		660	19.2		770	0.7
445	47.2		555	39.3		665	16.8		775	0.7
450	49.5		560	40.2		670	14.9		780	0.6
455	32.3		565	41.3		675	12.9		---	---

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**

**REPORT NO. 104206403CHI-120**

#	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
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

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
---	None	---	---	---
---	---	---	---	---
---	---	---	---	---