

VISUAL COMFORT & CO.

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

E4PSLRD-9408-W

PROJECT NUMBER

G104206403

REPORT NUMBER

104206403CHI-128

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-128

MODEL NUMBER(s)

E4PSLRD-9408-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-128

ITEMS RECEIVED

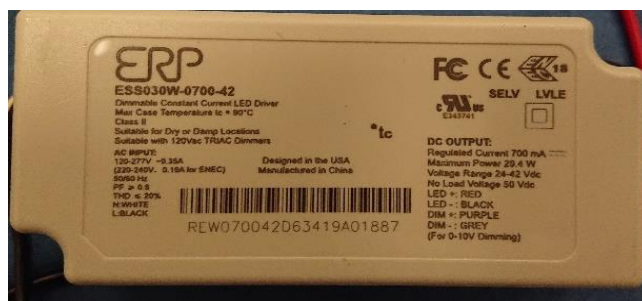
Item No.	Control No.	Model No.	Description	Type	Received
1	AH07242020122945-128	E4PSLRD-9408-W	E4PSL 85deg 700mA	Production	7/23/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	E4PSLRD-9408-W	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS

1



SUMMARY

REPORT NO. 104206403CHI-128

PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	E4PSLRD-9408-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)	2209.3	2268.0
Input Power (W) @ 120 (Vac)	27.40	27.31
Lumen Efficacy (lm/W)	80.6	83.0
Input Power Factor (I) @ 120 (Vac)	0.983	0.984

Criteria	Results
Input ATHD (%) @ 120 (Vac)	12.63
Correlated Color Temperature (K)	3933
Color Rendering Index - Ra (I)	92.5
Color Rendering Index - R9 (I)	76.1
Duv (I)	0.0003
Chromaticity Coordinate (x)	0.384
Chromaticity Coordinate (y)	0.379
Chromaticity Coordinate (u')	0.226
Chromaticity Coordinate (v')	0.503

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-128

Test Configuration	Tested Model No.	Pass/Fail/NA
1	E4PSLRD-9408-W	NA

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

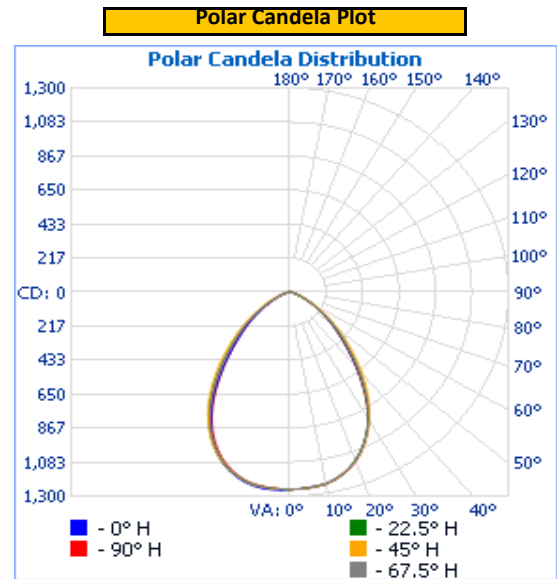
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.0	232.1	27.40	0.983

Light Output (lm)	Lumen Efficacy (lm/W)
2209.3	80.6

INTENSITY SUMMARY - CANDELA

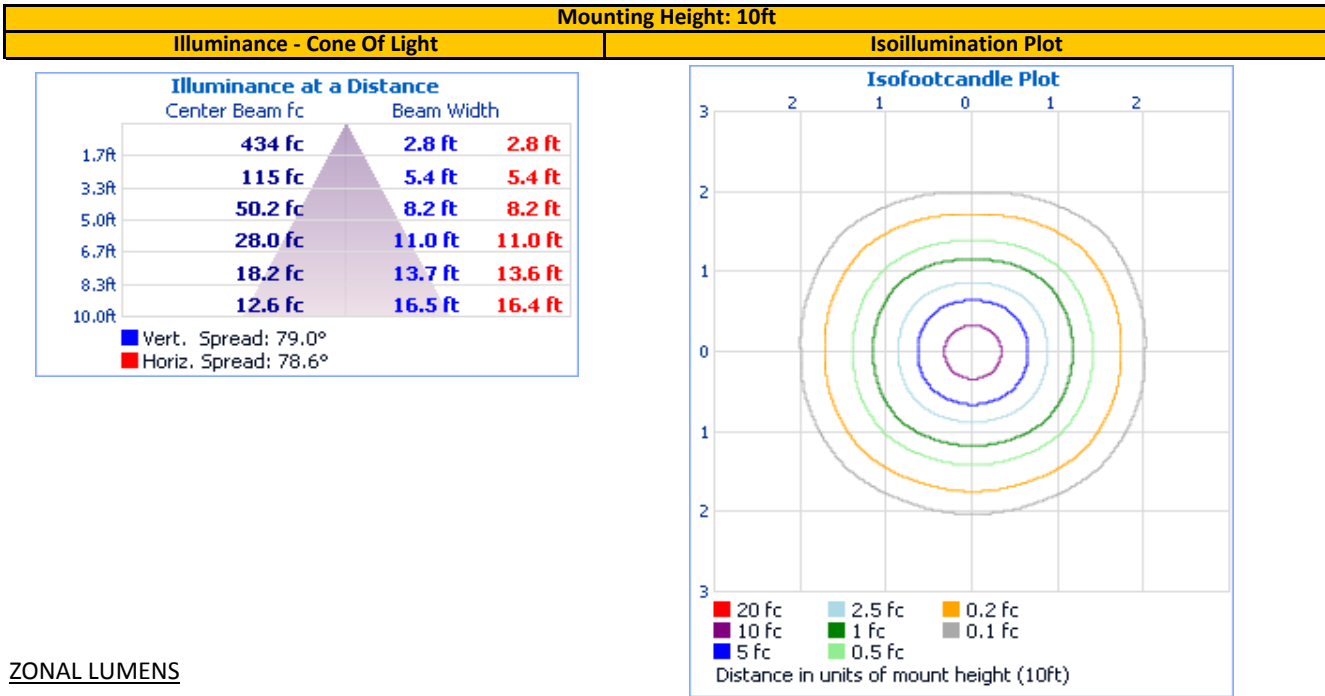
Angle	0	22.5	45	67.5	90
0	1256	1256	1256	1256	1256
5	1249	1251	1251	1252	1252
10	1238	1239	1239	1240	1241
15	1202	1201	1202	1203	1205
20	1141	1140	1143	1143	1146
25	1052	1050	1057	1053	1054
30	938	931	946	934	930
35	783	785	810	787	772
40	614	623	663	626	606
45	464	475	516	479	457
50	345	355	388	360	339
55	247	250	274	254	239
60	161	161	180	166	156
65	100	98	109	102	96
70	58	56	58	57	56
75	31	29	30	29	28
80	18	16	15	15	15
85	10	8	7	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



REPORT NO. 104206403CHI-128

ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	944.6	42.8%	90-100	0.0	0.0%
0-40	1,441.7	65.3%	100-110	0.0	0.0%
0-60	2,057.9	93.1%	110-120	0.0	0.0%
60-90	151.4	6.9%	120-130	0.0	0.0%
70-100	43.6	2.0%	130-140	0.0	0.0%
90-120	0.0	0.0%	140-150	0.0	0.0%
0-90	2,209.3	100.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	160-170	0.0	0.0%
0-180	2,209.3	100.0%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

REPORT NO. 104206403CHI-128

Test Configuration	Tested Model No.	Pass/Fail/NA
1	E4PSLRD-9408-W	NA

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

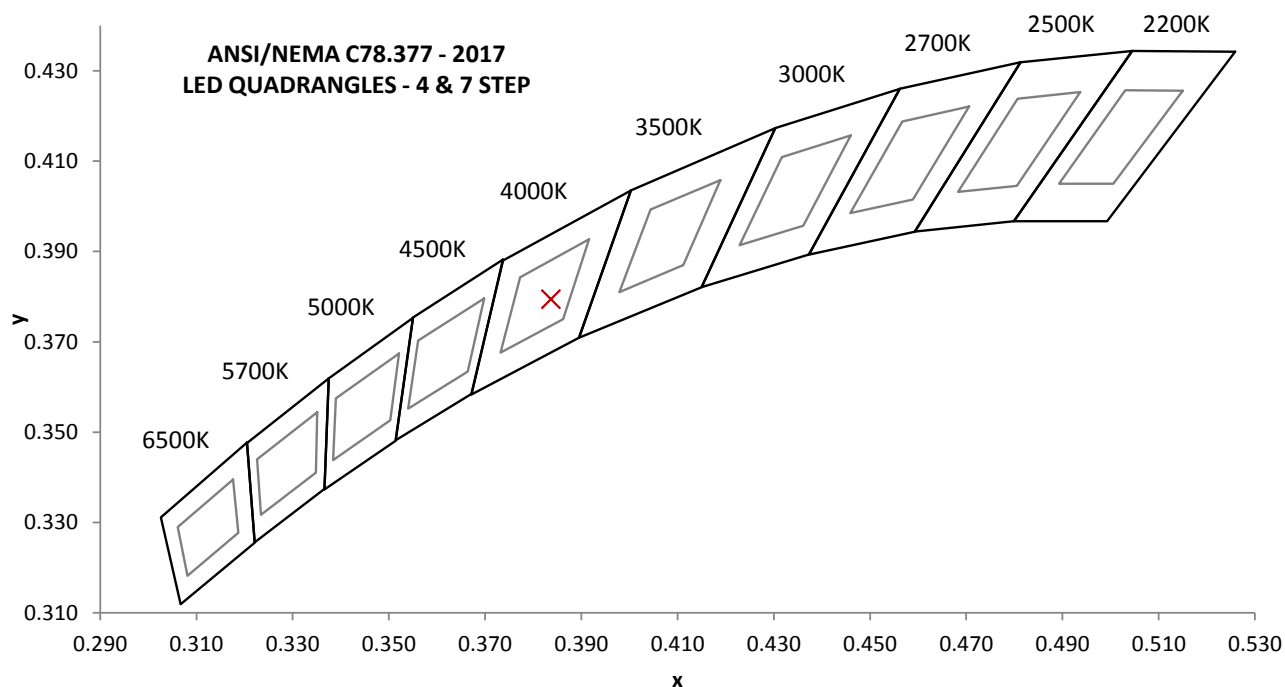
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
119.97	231.4	27.31	0.984	12.63

Measured at 119.97(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
2268.0	83.0	3933	92.5	76.1

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0003	0.384	0.379	0.226	0.503

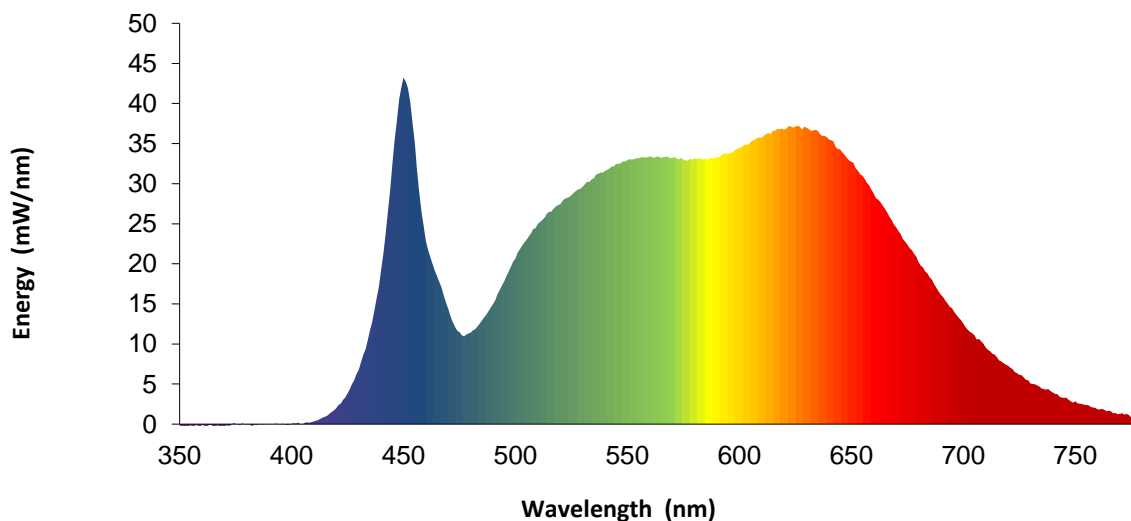


REPORT NO. 104206403CHI-128

SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	-0.5		460	22.8		570	33.2		680	20.3
355	-0.1		465	18.4		575	33.0		685	18.3
360	-0.1		470	14.3		580	33.2		690	16.2
365	-0.3		475	11.5		585	33.2		695	14.5
370	-0.2		480	11.4		590	33.3		700	12.6
375	0.0		485	12.9		595	33.7		705	11.1
380	-0.1		490	15.0		600	34.5		710	9.6
385	-0.1		495	17.8		605	35.2		715	8.4
390	0.0		500	20.7		610	35.7		720	7.3
395	-0.1		505	23.0		615	36.6		725	6.1
400	0.1		510	25.0		620	36.7		730	5.1
405	0.0		515	26.5		625	37.1		735	4.4
410	0.4		520	27.4		630	37.0		740	4.0
415	0.9		525	28.6		635	36.6		745	3.3
420	2.0		530	29.6		640	35.5		750	2.9
425	3.8		535	30.7		645	34.3		755	2.4
430	6.8		540	31.6		650	32.7		760	1.9
435	11.6		545	32.4		655	31.0		765	1.7
440	19.3		550	32.9		660	28.8		770	1.3
445	32.4		555	33.2		665	26.9		775	0.9
450	43.2		560	33.4		670	24.6		780	0.7
455	35.1		565	33.2		675	22.4		---	---

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-128

#	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
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	---	---	---
---	---	---	---	---
---	---	---	---	---