

VISUAL COMFORT & COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

700PRTSRHE**-LED927

PROJECT NUMBER

G104349704

REPORT NUMBER

104349704CHI-015

ISSUE DATE

8/21/2020

REVISED DATE

None

TEST DATES

08/10/2020 through 08/11/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104349704CHI-015

MODEL NUMBER(s)

700PRTSRHE**-LED927

REPORT RENDERED TO:

VISUAL COMFORT & COMPANY
7400 LINDER AVE
SKOKIE, IL 60077

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-01080748-3.

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

CEC-140-2018-002: Title 20. Public Utilities and Energy

In Charge of Testing:



Ian Smith
Engineer
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Reviewer:



Jeff Davis
NA Technical Lead
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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH08062020034718	700PRTSRHE**-LED927	ROHE TABLE LAMP	Production	8/6/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	700PRTSRHE**-LED927	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700PRTSRHE**-LED927
Product Description:	ROHE TABLE LAMP
LED Model No.:	LUMINUS MP-2016-1100-27-90
Driver Model No.:	XINSPower A243-2401000I
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	2000.8	2086.7
Input Power (W) @ 120VAC (Vac)	24.92	24.80
Lumen Efficacy (lm/W)	80.3	84.2
Input Power Factor (I) @ 120VAC (Vac)	0.904	0.826

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	56.15
Correlated Color Temperature (K)	2626
Color Rendering Index - Ra (I)	93.0
Color Rendering Index - R9 (I)	63.3
Duv (I)	-0.0024
Chromaticity Coordinate (x)	0.462
Chromaticity Coordinate (y)	0.405
Chromaticity Coordinate (u')	0.267
Chromaticity Coordinate (v')	0.525

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	700PRTSRHE**-LED927	Pass

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

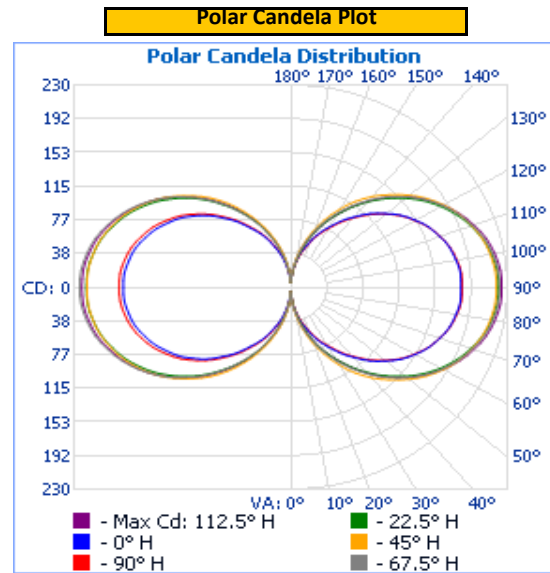
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Horizontal	120.0	229.5	24.92	0.904

Light Output (lm)	Lumen Efficacy (lm/W)
2000.8	80.3

INTENSITY SUMMARY - CANDELA

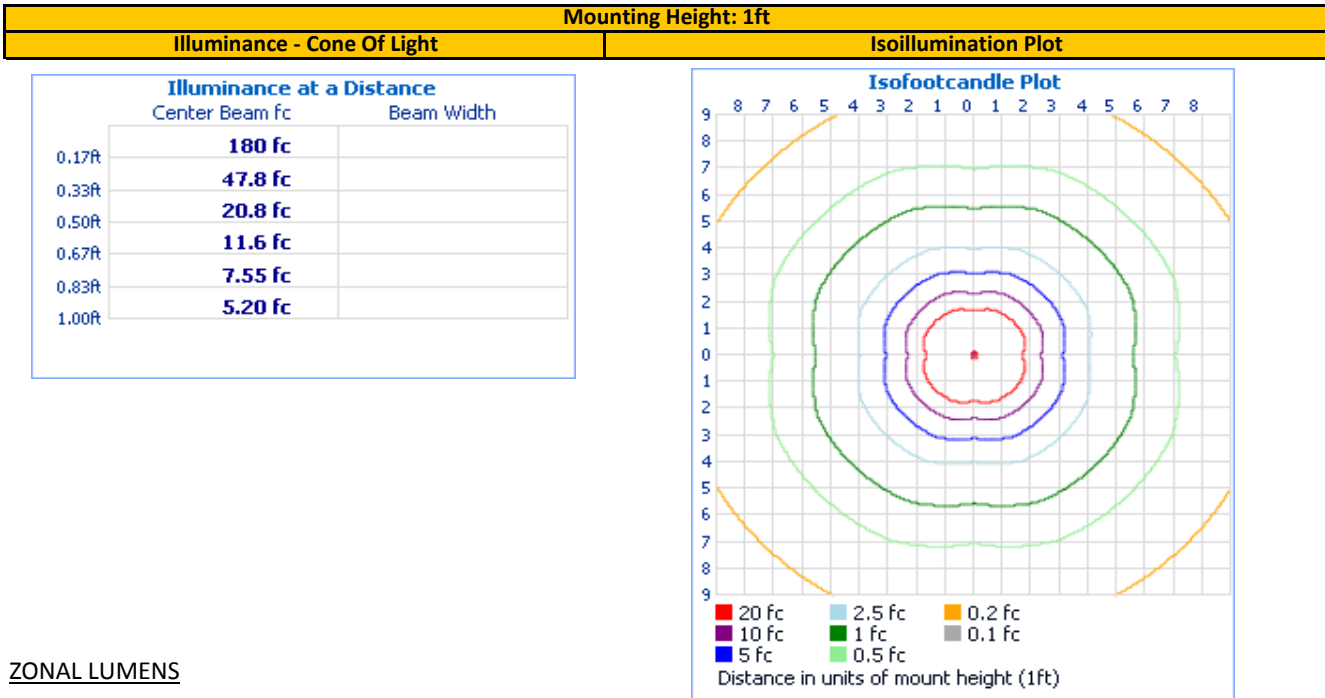
Angle	0	22.5	45	67.5	90
0	5	5	5	5	5
5	15	15	17	16	14
10	28	29	33	31	26
15	40	44	49	47	38
20	51	61	67	63	50
25	66	78	84	80	64
30	78	94	101	96	76
35	91	111	119	113	89
40	104	127	135	129	103
45	118	143	149	145	117
50	130	158	163	160	130
55	143	172	176	174	142
60	153	184	187	186	152
65	162	195	197	197	162
70	168	204	205	205	169
75	175	211	211	213	175
80	178	216	215	218	179
85	181	220	218	221	182
90	181	220	218	222	182
95	181	220	218	221	182
100	178	216	215	218	179
105	175	211	211	213	175
110	168	204	205	205	169
115	162	195	197	197	162
120	153	184	187	186	152
125	143	172	176	174	142
130	130	158	163	160	130
135	118	143	149	145	117
140	104	127	135	129	103
145	91	111	119	113	89
150	78	94	101	96	76
155	66	78	84	80	64
160	51	61	67	63	50
165	40	44	49	47	38
170	28	29	33	31	26
175	15	15	17	16	14
180	5	5	5	5	5

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	50.7	2.5%	90-100	228.0	11.4%
0-40	118.6	5.9%	100-110	213.2	10.7%
0-60	374.0	18.7%	110-120	185.3	9.3%
60-90	626.5	31.3%	120-130	148.3	7.4%
70-100	669.1	33.4%	130-140	107.1	5.4%
90-120	626.5	31.3%	140-150	67.8	3.4%
0-90	1,000.5	50.0%	150-160	35.6	1.8%
90-180	1,000.4	50.0%	160-170	13.2	0.7%
0-180	2,000.8	100.0%	170-180	2.0	0.1%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700PRTSRHE**-LED927	Pass

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

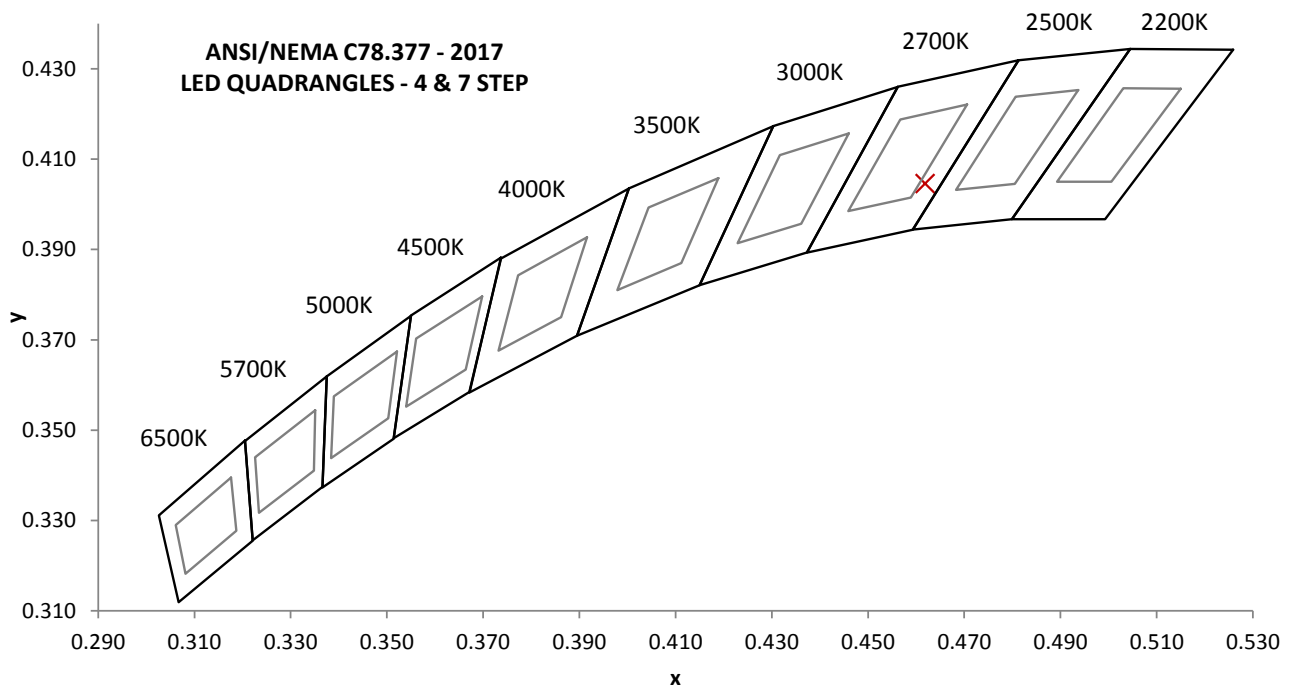
Base Orientation
Horizontal

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
119.95	248.0	24.80	0.826	56.15

Measured at 119.95(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
2086.7	84.2	2626	93.0	63.3

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0024	0.462	0.405	0.267	0.525

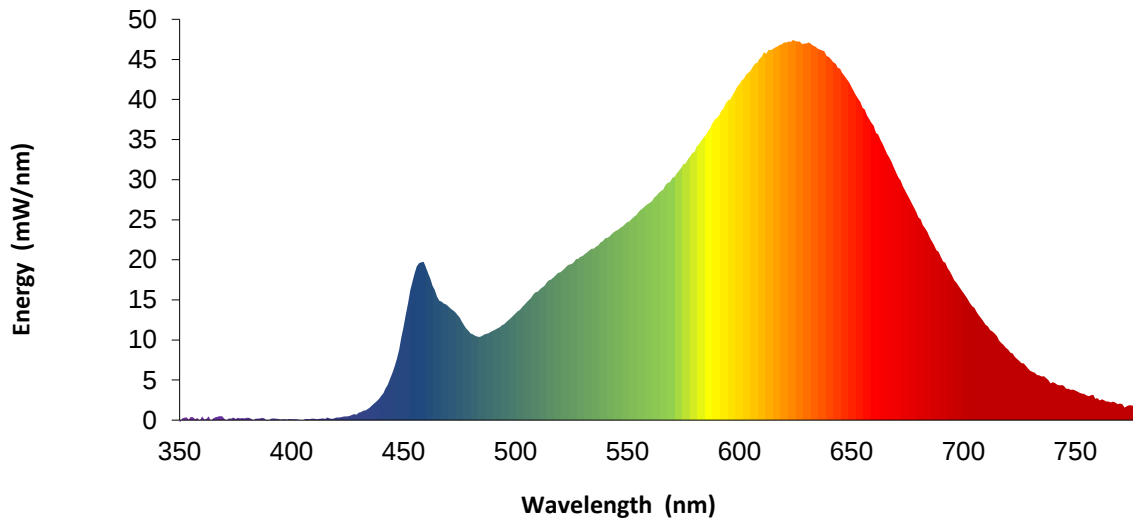


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	-0.4		460	19.0		570	30.2		680	25.3
355	0.4		465	15.4		575	31.9		685	22.8
360	0.5		470	14.2		580	33.4		690	20.4
365	0.2		475	12.8		585	35.6		695	18.0
370	0.2		480	10.8		590	37.7		700	15.9
375	0.1		485	10.5		595	39.9		705	14.0
380	0.3		490	11.2		600	41.9		710	11.9
385	0.2		495	12.0		605	43.6		715	10.5
390	0.1		500	13.3		610	45.3		720	8.8
395	0.1		505	14.7		615	46.3		725	7.4
400	0.1		510	16.0		620	47.1		730	6.1
405	0.0		515	17.5		625	47.3		735	5.4
410	0.2		520	18.5		630	47.0		740	4.7
415	0.2		525	19.5		635	46.3		745	4.3
420	0.3		530	20.5		640	45.3		750	3.7
425	0.5		535	21.4		645	43.9		755	3.1
430	0.9		540	22.7		650	41.6		760	2.7
435	1.6		545	23.6		655	39.0		765	2.3
440	3.0		550	24.7		660	36.7		770	2.1
445	5.9		555	26.0		665	33.9		775	1.8
450	11.6		560	27.1		670	30.9		780	1.5
455	18.4		565	28.6		675	28.1		---	---

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	Multi Channel Spectroradiometer	OL770	CHI0092	VBU	VBU
7	Newport Humidity Recorder	iServer	CHI0456	10/11/2019	10/11/2020
8	Labsphere Spectroradiometer	CDS-600	146923	VBU	VBU
9	2M Rotating Sphere	7660-ROT	146923	VBU	VBU
10	Omega thermometer	USB TC08	EQAH002615	4/7/2020	4/7/2021
11	Ametek DC Power Supply	XFR150-8	1468464	VBU	VBU
12	Yokogawa Power Meter	WT210	146880	10/2/2019	10/2/2020
13	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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