

VISUAL COMFORT AND COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

700WSMTRS-LED930

PROJECT NUMBER

G104941221

REPORT NUMBER

104941221CRT-018

ISSUE DATE

7/28/2022

REVISED DATE

None

TEST DATES

7/15/2022 through 7/25/2022

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104941221CRT-018

MODEL NUMBER(s)

700WSMTRS-LED930

REPORT RENDERED TO:

VISUAL COMFORT AND COMPANY
7400 LINDER AVE
SKOKIE, IL 60077

STATEMENT OF LIMITATION

NVLAP Lab Code 100402-0. 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-01236637-1.

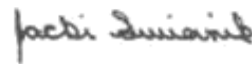
TEST STANDARDS

ANSI/IES LM-79-19: Optical and Electrical Measurements of Solid State Lighting Products

ANSI NEMA ANSLG C78.377: 2017: Specifications for the Chromaticity of Solid State Lighting (SSL) Products

In Charge of Testing:

Reviewer:



Melanie Brittain
Senior Associate Engineer
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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	CRT2206301053-018	700WSMTRS-LED930	Mortar Wall	Production	6/30/2022

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700WSMTRS-LED930
Product Description:	Mortar Wall
LED Model No.:	Luminus MP-3030-1100-30-90
Driver Model No.:	EPT D13-300RC
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	517.8	531.7
Input Power (W) @ 120 (Vac)	10.49	10.52
Luminous Efficacy (lm/W)	49.38	50.54
Input Power Factor (I) @ 120 (Vac)	0.887	0.985

Criteria	Results
Input ATHD (%) @ 120 (Vac)	12.07
Correlated Color Temperature (K)	2928
Color Rendering Index - Ra (I)	93.1
Color Rendering Index - R9 (I)	62.3
Duv (I)	-0.0018
Chromaticity Coordinate (x)	0.440
Chromaticity Coordinate (y)	0.401
Chromaticity Coordinate (u')	0.254
Chromaticity Coordinate (v')	0.520

TEST METHODS

SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

No seasoning was performed in accordance with ANSI/IES LM-79-19

INTEGRATING SPHERE TESTING

A spectroradiometer and integrating sphere were used to measure the spectral power distribution for photometric and colorimetric data of 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 and relative humidity was measured at $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$ and 10-65% respectively at a position inside of the sphere within 1.5m and at equal height of the EUT. Stabilization procedures to LM-79-19 were followed. The EUT was mounted in a 4π configuration.

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 and relative humidity was measured at $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$ and 10-65% respectively at a position within 1.5m and at equal height of the EUT. Stabilization procedures to LM-79-19 were followed. The test distance was $\geq 5x$ the longest luminous dimension of the EUT.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

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PHOTOMETRIC AND ELECTRICAL MEASUREMENTS

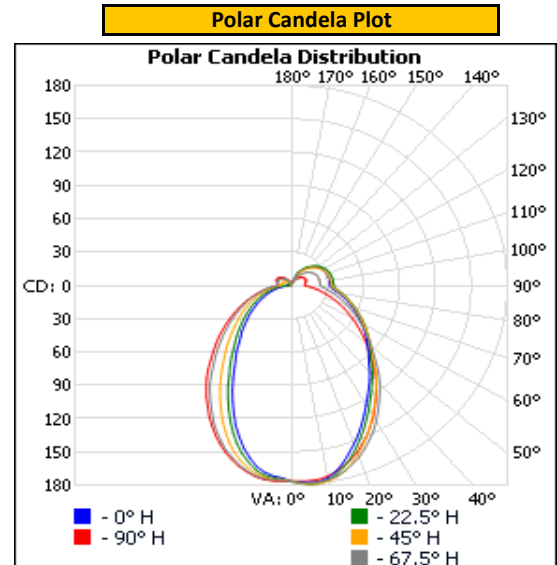
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Wall Mount	120.43	88.3	10.49	0.887

Light Output (lm)	Efficacy (lm/W)
517.8	49.4

LUMINOUS INTENSITY SUMMARY (candela)

Angle (°)	0	22.5	45	67.5	90
0	176	176	176	176	176
5	178	180	180	179	177
10	176	178	179	178	174
15	166	169	173	173	169
20	152	157	162	165	160
25	138	143	149	154	149
30	125	129	136	141	136
35	112	116	122	128	123
40	102	106	110	115	110
45	91	94	97	100	95
50	83	86	87	88	82
55	75	78	78	76	70
60	68	70	70	66	59
65	60	63	62	57	48
70	53	56	55	48	39
75	47	50	48	41	30
80	40	43	42	34	22
85	35	38	37	28	16
90	32	36	34	24	11
95	32	35	33	24	11
100	32	35	33	24	12
105	32	34	32	24	13
110	32	34	32	24	13
115	31	33	31	23	13
120	30	31	29	22	13
125	28	30	27	20	12
130	26	27	25	18	11
135	23	24	22	16	10
140	21	22	19	13	8
145	18	18	16	9	7
150	14	15	12	7	6
155	11	8	0	4	4
160	1	0	0	0	1
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



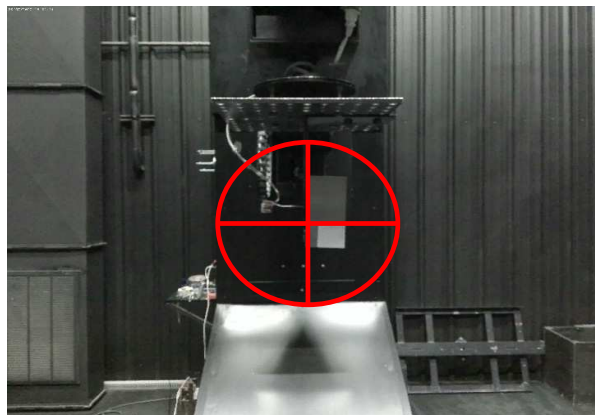
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ORIENTATION AND ALIGNMENT OF EUT

Luminous Opening		
Length (ft)	Width (ft)	Height (ft)
0.10	0.41	0.13
0°-180° H	90°-270° H	0°-180° V

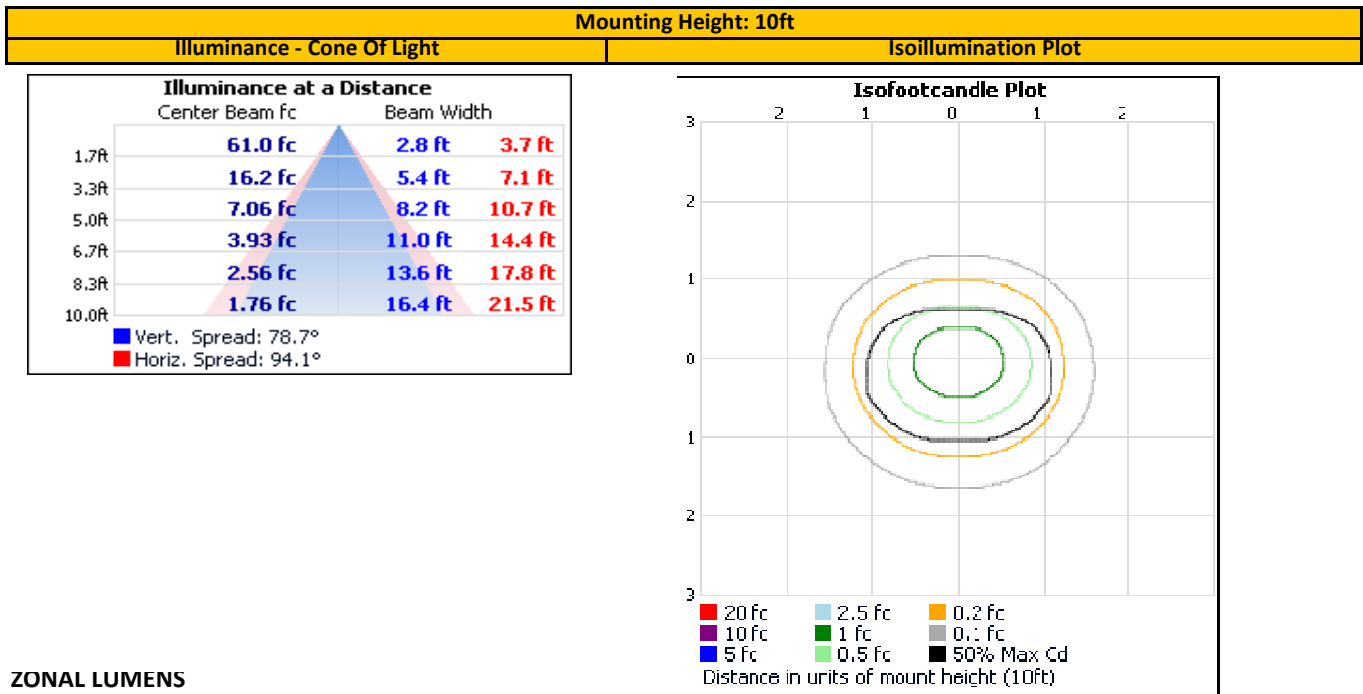
Test Distance (ft)
29.6

PHOTOMETRIC CENTER OF EUT



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ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	128.1	24.7%	90-100	19.5	3.8%
0-40	198.1	38.3%	100-110	18.6	3.6%
0-60	323.6	62.5%	110-120	16.8	3.2%
60-90	109.0	21.1%	120-130	13.6	2.6%
70-100	80.3	15.5%	130-140	9.6	1.8%
90-120	54.9	10.6%	140-150	5.5	1.1%
0-90	432.6	83.6%	150-160	1.6	0.3%
90-180	85.2	16.4%	160-170	0.0	0.0%
0-180	517.8	100.0%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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PHOTOMETRIC, RADIOMETRIC, COLORIMETRIC, AND ELECTRICAL MEASUREMENTS

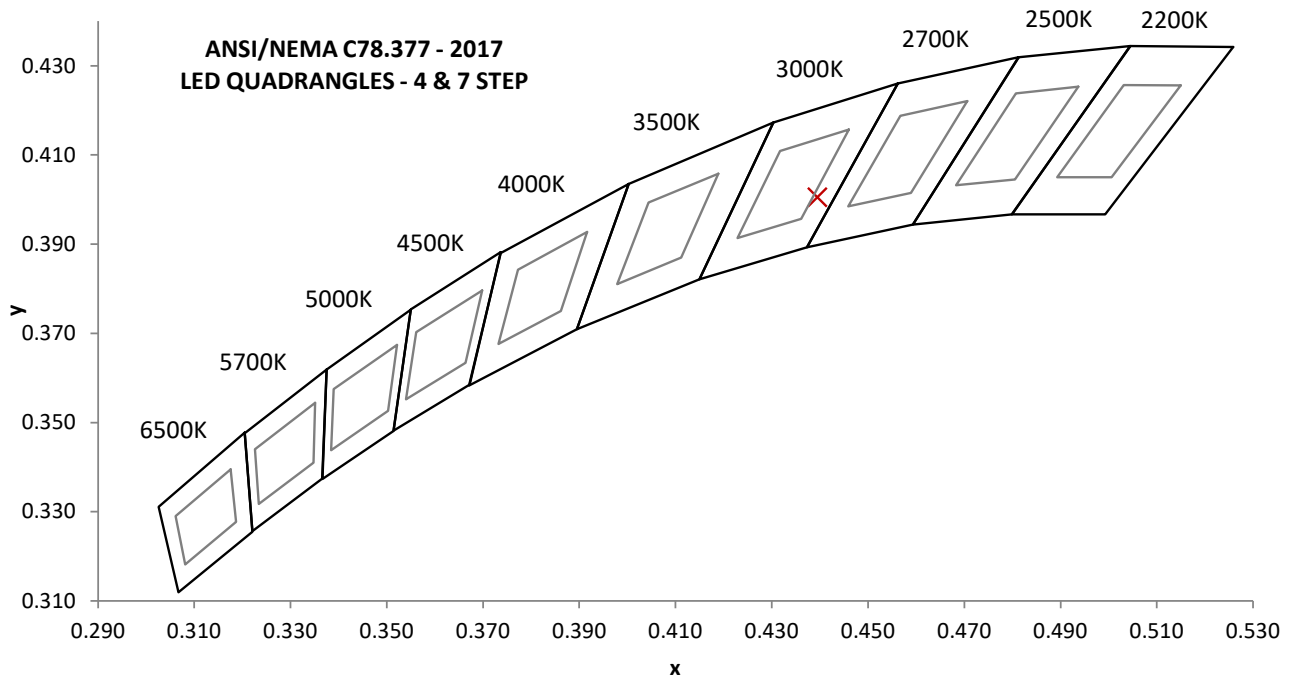
Base Orientation
Wall Mount

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (l)	Input ATHD (%)
120.03	89.0	10.52	0.985	12.07

Measured at 120.03(Vac)

Light Output (lm)	Efficacy (lm/W)	CCT (K)	CRI - Ra (l)	CRI - R9 (l)
531.7	50.5	2928	93.1	62.3

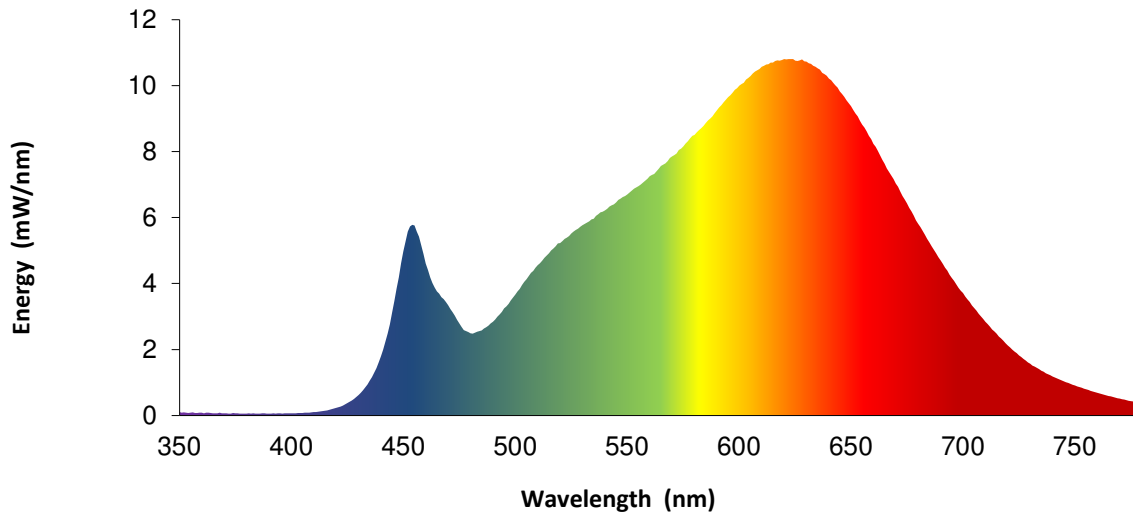
Duv (l)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0018	0.440	0.401	0.254	0.520



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SPECTRAL POWER DISTRIBUTION

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	4.6		570	7.9		680	5.8
355	0.1		465	3.8		575	8.2		685	5.2
360	0.1		470	3.3		580	8.5		690	4.7
365	0.1		475	2.8		585	8.9		695	4.2
370	0.1		480	2.5		590	9.3		700	3.7
375	0.1		485	2.6		595	9.6		705	3.3
380	0.1		490	2.8		600	10.0		710	2.8
385	0.1		495	3.2		605	10.3		715	2.5
390	0.1		500	3.7		610	10.6		720	2.1
395	0.1		505	4.1		615	10.7		725	1.8
400	0.1		510	4.6		620	10.8		730	1.6
405	0.1		515	4.9		625	10.8		735	1.4
410	0.1		520	5.2		630	10.7		740	1.2
415	0.1		525	5.5		635	10.5		745	1.0
420	0.2		530	5.8		640	10.2		750	0.9
425	0.4		535	6.0		645	9.8		755	0.8
430	0.6		540	6.2		650	9.4		760	0.7
435	1.1		545	6.5		655	8.8		765	0.6
440	1.8		550	6.7		660	8.2		770	0.5
445	3.1		555	6.9		665	7.6		775	0.4
450	5.0		560	7.3		670	7.0		780	0.4
455	5.8		565	7.6		675	6.4		---	---



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	Elgar AC Power Supply	CW1251	---	VBU	VBU
2	Sorenson DC Power Supply	XFR 150-8	---	VBU	VBU
3	Traceable Hygrothermometer	200110913	L206	2/21/2022	2/21/2023
4	Yokogawa Power Analyzer	WT1600	E462	5/21/2022	5/21/2023
5	Fluke Thermometer	53 II	D588	6/13/2022	6/13/2023
6	Fluke Multimeter	87V	M145	3/25/2022	3/25/2023
7	Current Monitor	411	A197	8/26/2021	8/26/2024
8	3M Integrating Sphere Spectrometer System	CDS 2600	L231	7/1/2022	10/1/2022
9	Fisher Scientific Stopwatch	14-649-9	N1132	3/24/2022	3/24/2023
10	LSI High Speed Mirror Goniophotometer	6440	---	6/30/2022	9/30/2022
11	Elgar AC Power Supply	CW1251	---	VBU	VBU
12	Yokogawa Power Analyzer	WT210	307-E464	6/21/2022	6/21/2023
13	Traceable Hygrothermometer	4800	L204	2/21/2022	2/21/2023
14	Sorenson DC Power Supply	XG 150-10	---	VBU	VBU
15	Omega Thermometer	DPi8-C24	M263	3/1/2022	3/1/2023
16	Bosch Distance Laser	Pro GLM 20	L210	3/21/2022	3/15/2023
17	Tape Measure	Crescent	---	9/21/2021	9/21/2024

The AC power supplies used for testing have a crest factor capable of 0-3.5

REVISION HISTORY

#	Revision Date	Updated By	Reviewed By	Description of Change
---	None	---	---	---
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ANNEX A - TM-30 CALCULATIONS

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TM-30 REPORT

