

VISUAL COMFORT AND COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

700WSDUE18**-LED9**

PROJECT NUMBER

G105265097

REPORT NUMBER

105265097CHI-017

ISSUE DATE

1/4/2023

REVISED DATE

None

TEST DATES

12/06/2022 through 01/03/2023.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

105265097CHI-017

MODEL NUMBER(s)

700WSDUE18**-LED9**

REPORT RENDERED TO:

VISUAL COMFORT AND COMPANY
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-01297671-0.

TEST STANDARDS

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting
ANSI/IES LM-79-19 Optical and Electrical Measurements of Solid-State Lighting Products

In Charge of Testing:



T. Quigley
Project Engineer
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Reviewer:



Jeff Davis
N.A Technical Lead
Lighting Division

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SAMPLE INFORMATION

REPORT NO. 105265097CHI-017

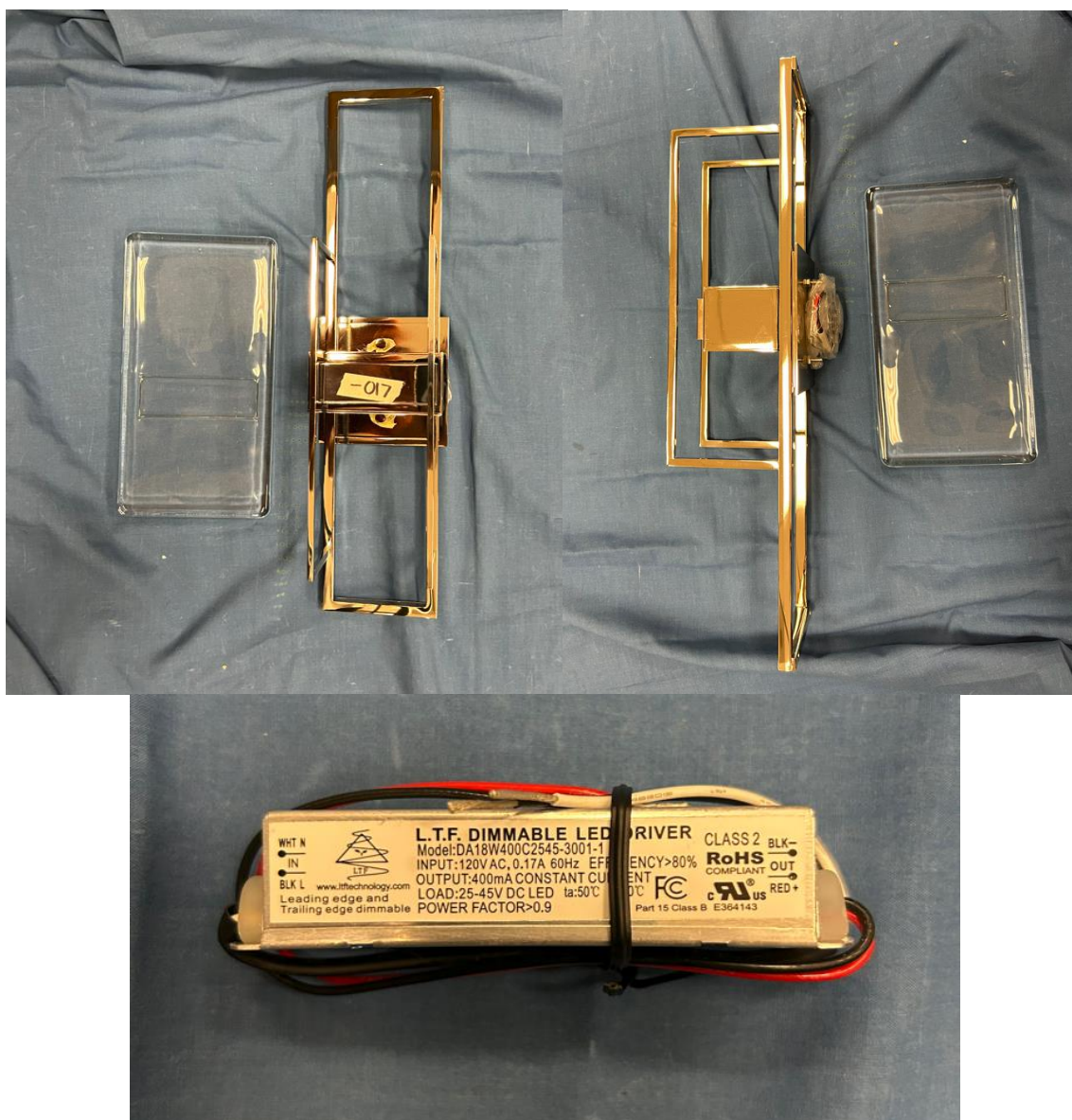
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH11232022041052-017	700WSDUE18**-LED9**	Duelle Medium Wall Sconce	Production	11/23/2022

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	700WSDUE18**-LED9**	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700WSDUE18**-LED9**
Product Description:	Duelle Medium Wall Sconce
LED Model No.:	BXRE-27G1000-C-82 (927, 2-step)
Driver Model No.:	DA18W400C2545-3001-01
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	1196.3	1193.9
Input Power (W) @ 120VAC (Vac)	14.97	15.02
Lumen Efficacy (lm/W)	79.9	79.5
Input Power Factor () @ 120VAC (Vac)	0.983	0.991

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	12.22
Correlated Color Temperature (K)	2675
Color Rendering Index - Ra ()	90.9
Color Rendering Index - R9 ()	65.6
Duv ()	0.0009
Chromaticity Coordinate (x)	0.463
Chromaticity Coordinate (y)	0.414
Chromaticity Coordinate (u')	0.263
Chromaticity Coordinate (v')	0.529

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	700WSDUE18**-LED9**	NA

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

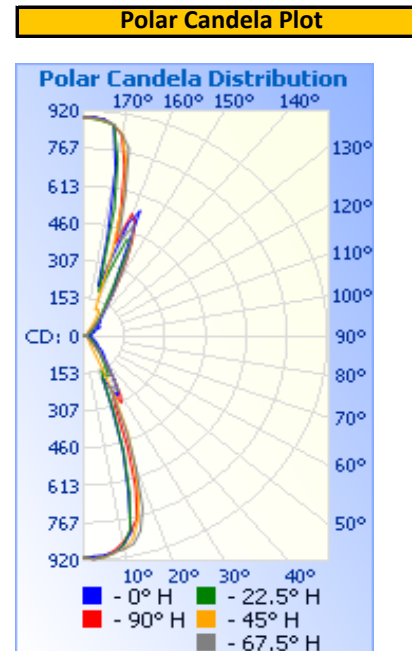
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up/Down	120.01	126.9	14.97	0.983

Light Output (lm)	Lumen Efficacy (lm/W)
1196.3	79.9

INTENSITY SUMMARY - CANDELA

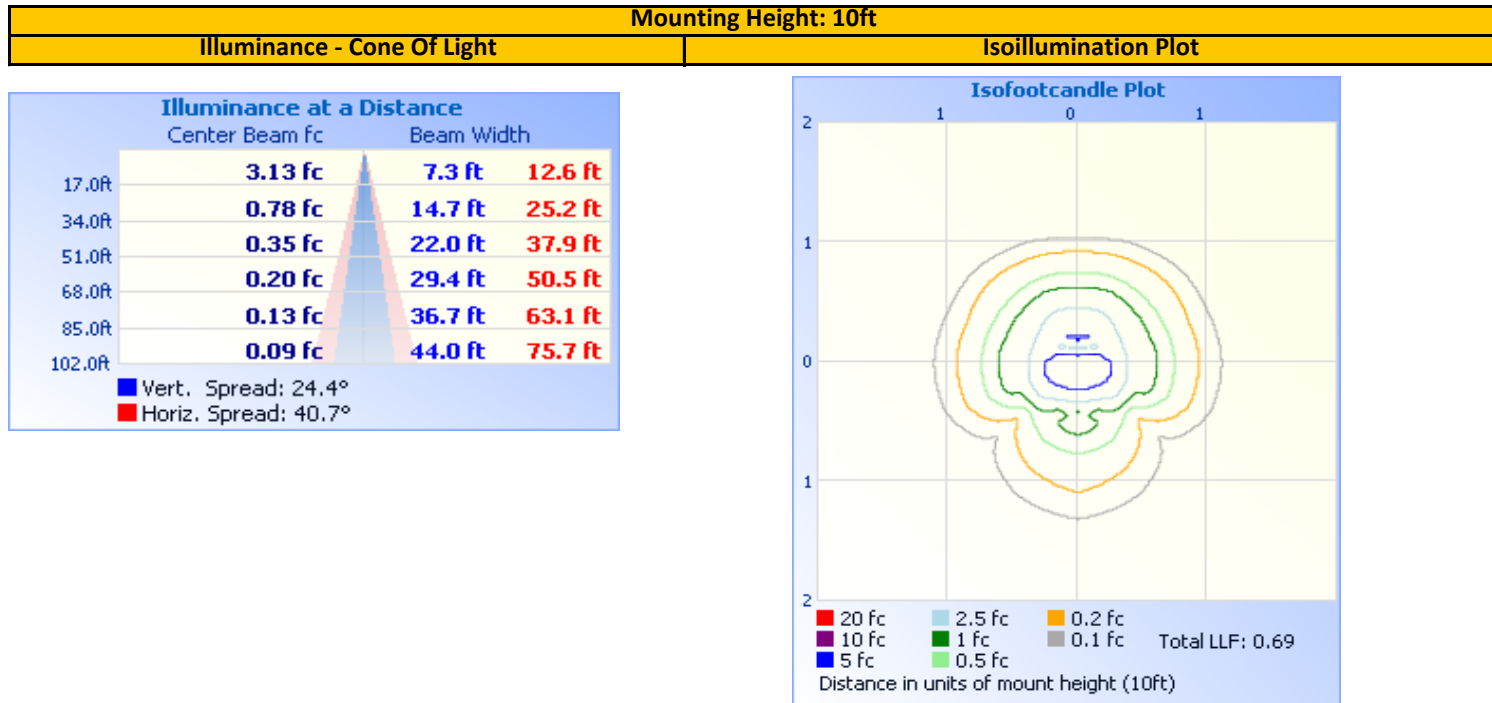
Angle	0	22.5	45	67.5	90
0	904	904	904	904	904
5	897	903	905	904	898
10	865	862	880	882	852
15	641	661	782	822	770
20	297	326	558	573	481
25	233	157	285	233	256
30	255	185	79	262	270
35	173	131	42	170	165
40	126	95	35	99	100
45	103	73	33	60	62
50	80	57	24	40	41
55	60	43	21	29	30
60	56	35	17	22	23
65	45	29	15	18	20
70	38	24	13	15	17
75	28	18	10	12	13
80	28	12	7	8	9
85	24	7	3	4	5
90	11	3	2	1	3
95	9	4	2	2	4
100	20	9	5	7	8
105	33	14	7	10	11
110	41	20	10	13	14
115	46	25	13	16	17
120	70	32	15	19	20
125	61	37	16	25	26
130	77	47	20	35	36
135	86	66	25	54	55
140	111	89	36	91	90
145	155	126	64	158	154
150	230	198	113	266	267
155	361	418	116	417	431
160	487	282	156	415	528
165	209	257	589	602	542
170	686	731	836	832	828
175	885	877	880	882	884
180	888	888	888	888	888

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	Zone	Lumens	Total
	0-30	411.4	34.4%		0-10	74.9	6.3%	90-100	3.8	0.3%
	0-40	506.9	42.4%		10-20	188.8	15.8%	100-110	10.0	0.8%
	0-60	580.3	48.5%		20-30	147.7	12.3%	110-120	15.0	1.3%
	60-90	33.0	2.8%		30-40	95.5	8.0%	120-130	22.7	1.9%
	70-100	20.2	1.7%		40-50	48.4	4.0%	130-140	43.9	3.7%
	90-120	28.8	2.4%		50-60	25.0	2.1%	140-150	95.2	8.0%
	0-90	613.4	51.3%		60-70	16.6	1.4%	150-160	171.0	14.3%
	90-180	583.0	48.7%		70-80	11.2	0.9%	160-170	145.0	12.1%
	0-180	1,196.3	100.0%		80-90	5.3	0.4%	170-180	76.4	6.4%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700WSDUE18**-LED9**	NA

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

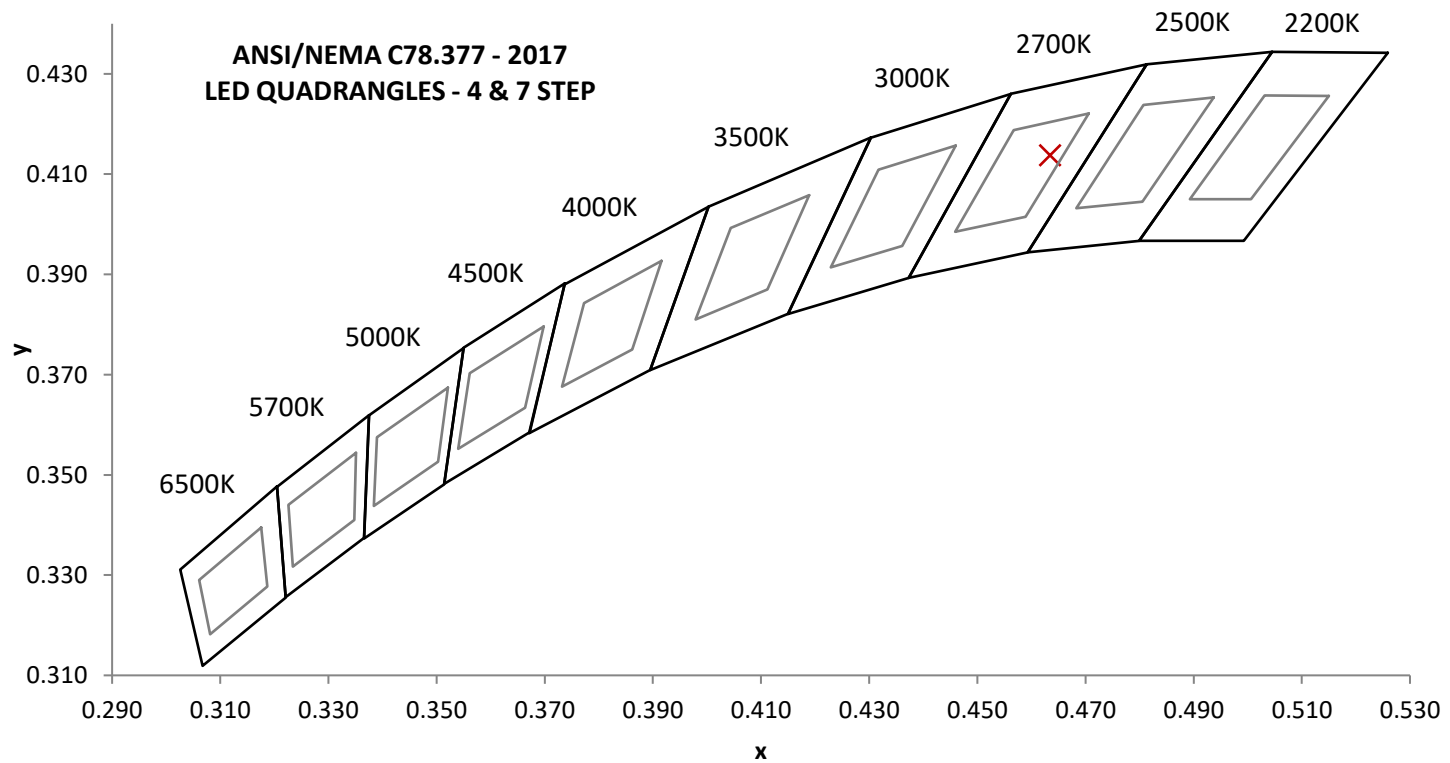
Base Orientation
Up/Down

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)	Input ATHD (%)
120.00	126.3	15.02	0.991	12.22

Measured at 120(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (I)	CRI - R9 (I)
1193.9	79.5	2675	90.9	65.6

Duv (I)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0009	0.463	0.414	0.263	0.529

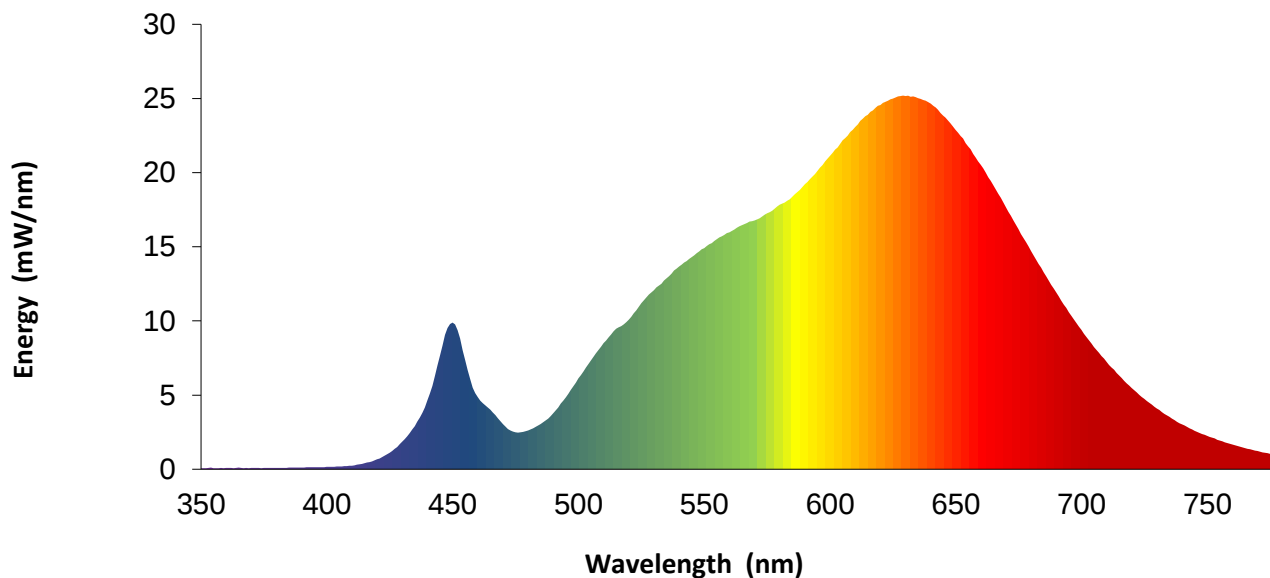


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	4.9		570	16.8		680	14.7
355	0.1		465	4.0		575	17.2		685	13.3
360	0.1		470	3.0		580	17.8		690	11.9
365	0.1		475	2.5		585	18.4		695	10.6
370	0.1		480	2.6		590	19.2		700	9.4
375	0.1		485	3.0		595	20.1		705	8.2
380	0.1		490	3.8		600	21.1		710	7.3
385	0.1		495	4.8		605	22.2		715	6.3
390	0.1		500	6.1		610	23.1		720	5.5
395	0.1		505	7.3		615	23.9		725	4.7
400	0.2		510	8.5		620	24.6		730	4.1
405	0.2		515	9.5		625	25.0		735	3.5
410	0.2		520	10.1		630	25.2		740	3.0
415	0.4		525	11.2		635	25.0		745	2.6
420	0.7		530	12.1		640	24.7		750	2.2
425	1.1		535	12.9		645	23.9		755	1.9
430	1.9		540	13.7		650	22.9		760	1.7
435	2.9		545	14.3		655	21.8		765	1.4
440	4.6		550	14.9		660	20.5		770	1.2
445	7.7		555	15.5		665	19.2		775	1.0
450	9.9		560	16.0		670	17.7		780	0.9
455	7.4		565	16.5		675	16.2		---	---

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	WT310E	CHI0664	3/30/2022	3/30/2023
2	Omega Thermometer	DPI8-C24	146920	10/4/2022	10/4/2023
3	LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
4	Newport Thermohygrometer	iServer	CHI0452	2/3/2022	2/3/2023
5	Chroma Power Supply	61604	CHI0371	VBU	VBU
6	Sorenson DC Power Supply	XHR 150-7	146922	VBU	VBU
7	Multi Channel Spectroradiometer	OL770	CHI0092	VBU	VBU
8	Newport Humidity Recorder	iServer	146379	5/11/2022	5/11/2023
9	Labsphere Spectroradiometer	CDS2600	CHI0539	VBU	VBU
10	3 Meter Sphere	SPR600	CHI0088	VBU	VBU
11	Elgar AC Power Supply	CW1251	146112	VBU	VBU
12	Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
13	Yokogawa Power Meter	WT1600	146769	4/5/2022	4/5/2023
17	Omega thermometer	USB TC08	EQAH002615	4/5/2022	4/5/2023
26	Xitron Power Analyzer	XT-2640	CHI0611	7/6/2022	7/6/2023

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	---	---	---
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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700WSDUE18**-LED9**	NA

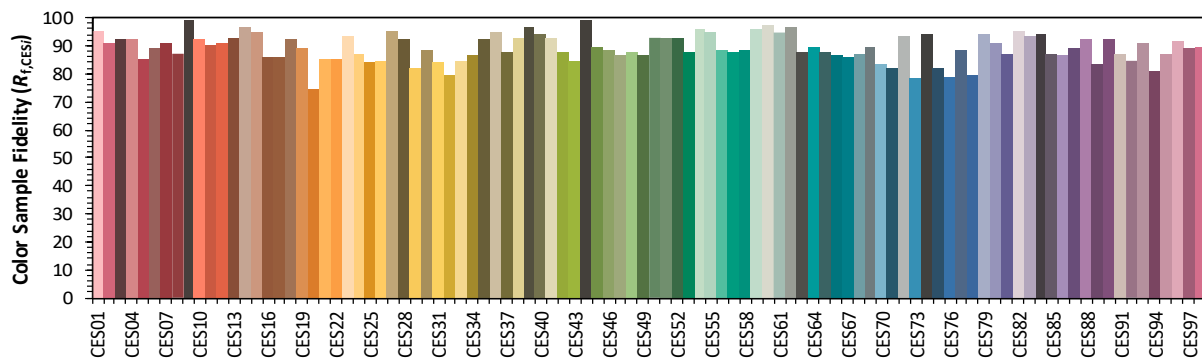
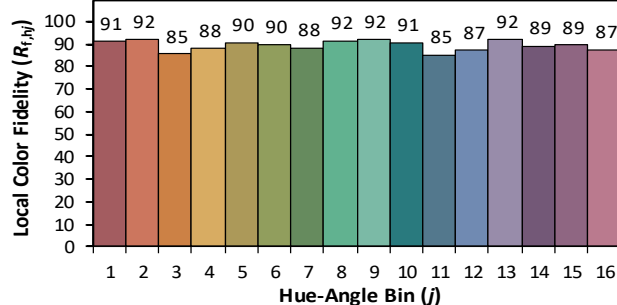
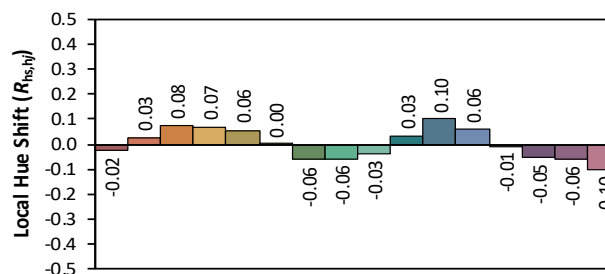
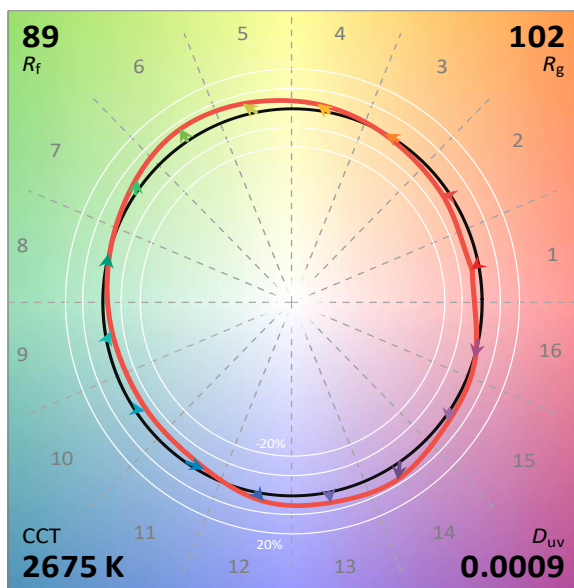
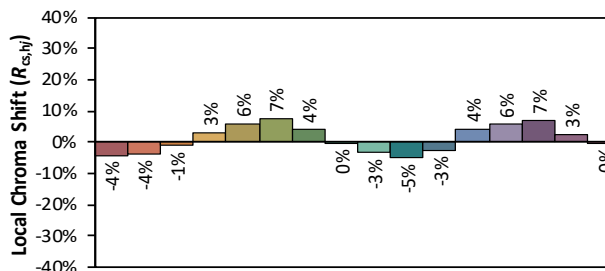
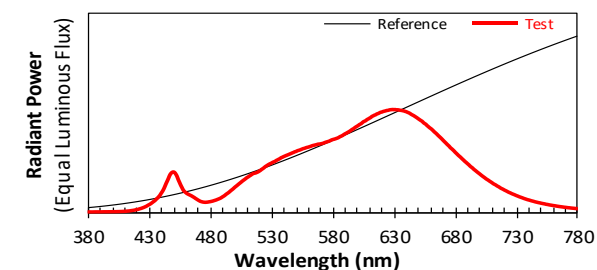
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: VISUAL COMFORT AND COMPANY

Date: 12/6/2022

Model: 700WSDUE18**-LED9**



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4634

y 0.4138

u' 0.2634

v' 0.5291

CIE 13.3-1995
(CRI)

R_a 91R_g 66