

VISUAL COMFORT AND COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

SLWS23030N

PROJECT NUMBER

G105408958

REPORT NUMBER

105408958CHI-006

ISSUE DATE

4/14/2023

REVISED DATE

None

TEST DATES

2023-04-12 through 2023-04-13.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

105408958CHI-006

MODEL NUMBER(s)

SLWS23030N

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

IES 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

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

ANSI/IES TM-30-18: IES Method for Evaluating Light Source Color Rendition

In Charge of Testing:



David Dalo
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Reviewer:



Jeff Davis
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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH04062023065219-002	SLWS23030N	Perle 40 Wall Sconce	Production	4/6/2023

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	SLWS23030N	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS

Distribution was performed with below orientation and crystals aligned



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	SLWS23030N
Product Description:	Perle 40 Wall Sconce
LED Model No.:	AA3965-01-0x (Samsung SPMWH12245Q7W8WMSA)
Driver Model No.:	DS25W24VBF1UD-0000 (AA7580)
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	640.0	634.5
Input Power (W) @ 120 (Vac)	13.22	13.22
Lumen Efficacy (lm/W)	48.4	48.0
Input Power Factor (I) @ 120 (Vac)	0.946	0.950

Criteria	Results
Input ATHD (%) @ 120 (Vac)	16.20
Correlated Color Temperature (K)	2988
Color Rendering Index - Ra (I)	93.2
Color Rendering Index - R9 (I)	58.7
Duv (I)	-0.0007
Chromaticity Coordinate (x)	0.437
Chromaticity Coordinate (y)	0.402
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.521

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.

*ANSI/IES Technical Memorandums (TM) reported are not NVLAP accredited

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	SLWS23030N	NA

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

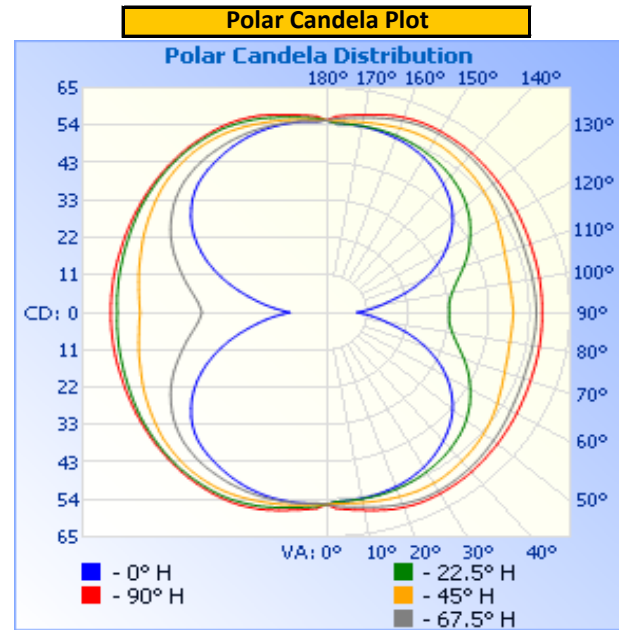
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up	120.02	116.4	13.22	0.946

Light Output (lm)	Lumen Efficacy (lm/W)
640.0	48.4

INTENSITY SUMMARY - CANDELA

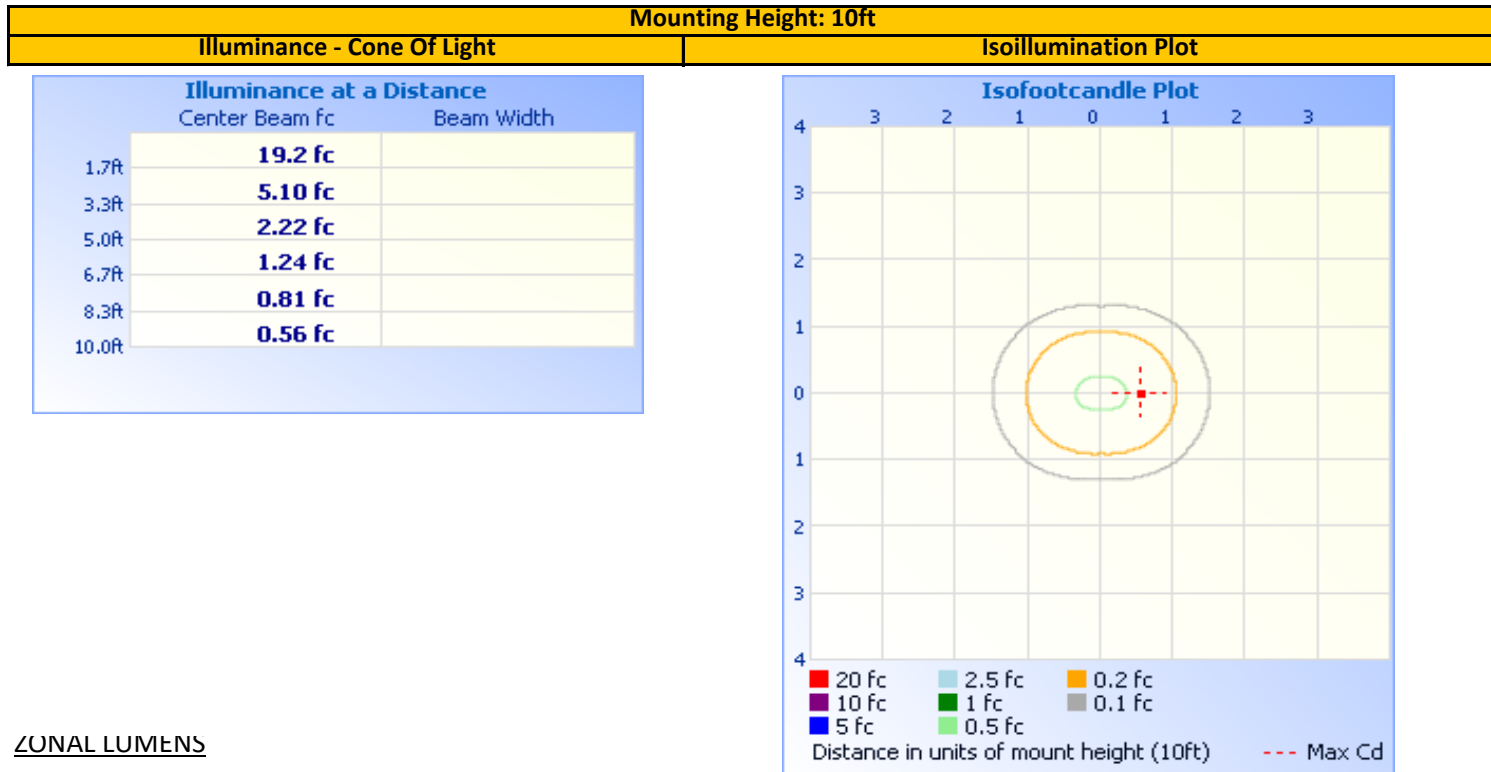
Angle	0	22.5	45	67.5	90
0	56	56	56	56	56
5	55	55	56	56	57
10	55	55	56	57	58
15	54	55	56	58	59
20	54	54	57	59	60
25	53	54	57	60	61
30	52	53	57	60	61
35	50	53	57	59	60
40	48	51	56	59	60
45	46	50	56	59	60
50	44	49	55	58	59
55	41	47	54	57	59
60	37	44	53	57	59
65	33	42	52	56	58
70	27	39	51	56	58
75	22	36	50	56	58
80	16	34	50	56	58
85	12	33	50	56	58
90	8	33	50	56	57
95	12	33	50	56	58
100	16	34	50	56	58
105	22	36	50	56	58
110	27	39	51	56	58
115	33	42	52	56	58
120	37	44	53	57	59
125	41	47	54	57	59
130	44	49	55	58	59
135	46	50	56	59	60
140	48	51	56	59	60
145	50	53	57	59	60
150	52	53	57	60	61
155	53	54	57	60	61
160	54	54	57	59	60
165	54	55	56	58	59
170	55	55	56	57	58
175	55	55	56	56	57
180	56	56	56	56	56

Entire luminous intensity matrix found in .IES file



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ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary										
Zone	Zone	Lumens	Luminaire	Zone	Zone	Lumens	Total	Zone	Lumens	Total
	0-30	48.0	7.5%		0-10	5.4	0.8%	90-100	47.8	7.5%
	0-40	83.6	13.1%		10-20	16.1	2.5%	100-110	49.0	7.7%
	0-60	173.9	27.2%		20-30	26.5	4.1%	110-120	49.3	7.7%
	60-90	146.1	22.8%		30-40	35.6	5.6%	120-130	47.4	7.4%
	70-100	144.6	22.6%		40-50	42.8	6.7%	130-140	42.8	6.7%
	90-120	146.1	22.8%		50-60	47.4	7.4%	140-150	35.6	5.6%
	0-90	320.0	50.0%		60-70	49.3	7.7%	150-160	26.5	4.1%
	90-180	320.0	50.0%		70-80	49.0	7.7%	160-170	16.1	2.5%
	0-180	640.0	100.0%		80-90	47.8	7.5%	170-180	5.4	0.8%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	SLWS23030N	NA

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

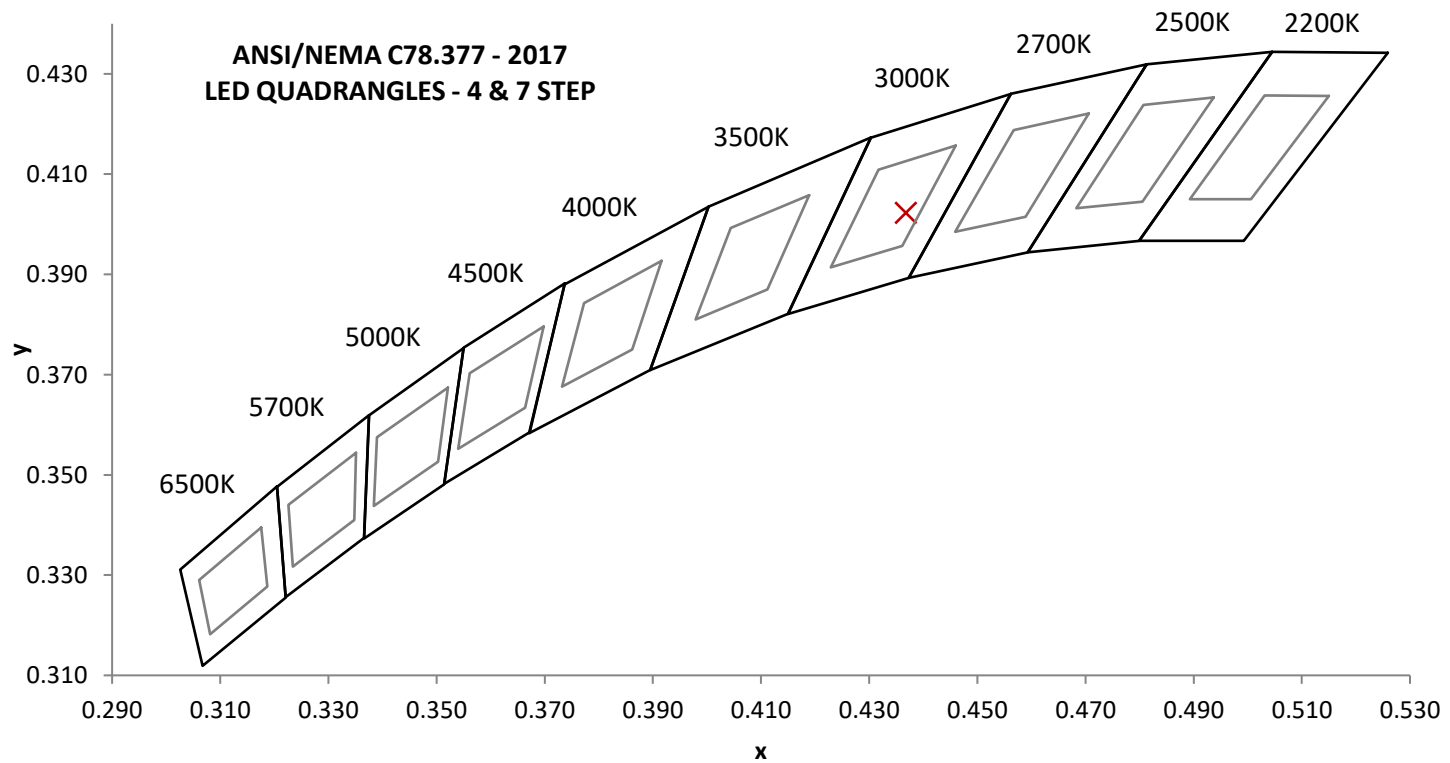
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (l)	Input ATHD (%)
120.02	116.0	13.22	0.950	16.20

Measured at 120.02(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (l)	CRI - R9 (l)
634.5	48.0	2988	93.2	58.7

Duv (l)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0007	0.437	0.402	0.251	0.521

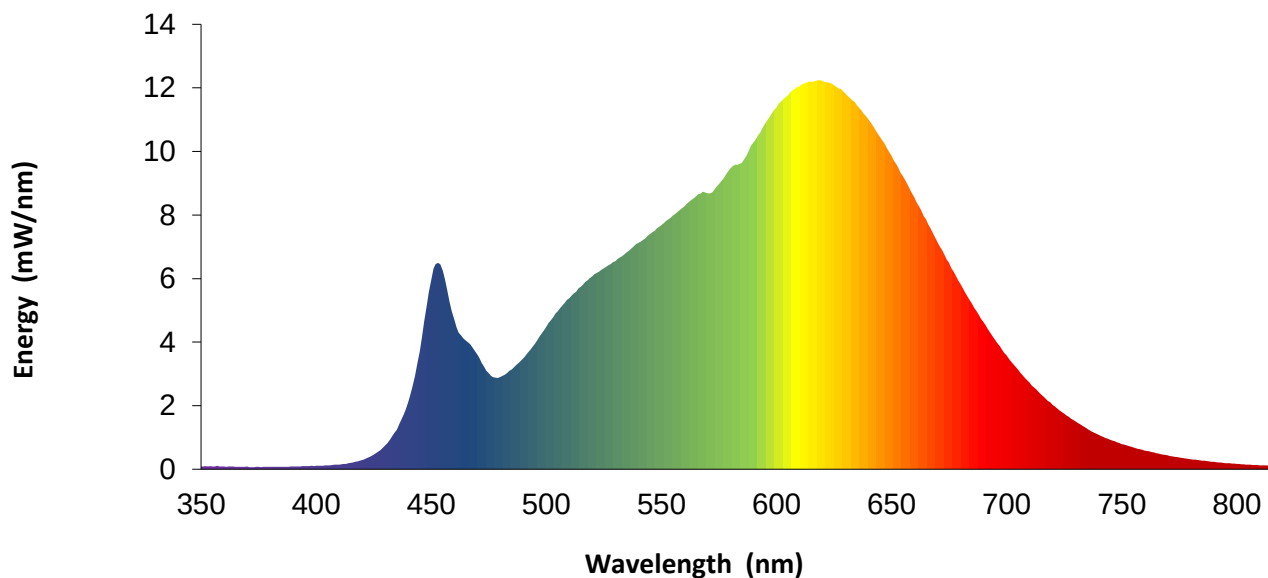


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	4.7		570	8.7		680	5.8
355	0.1		465	4.0		575	9.0		685	5.2
360	0.1		470	3.6		580	9.5		690	4.6
365	0.1		475	3.0		585	9.7		695	4.1
370	0.1		480	2.9		590	10.3		700	3.6
375	0.1		485	3.1		595	10.9		705	3.1
380	0.1		490	3.5		600	11.4		710	2.7
385	0.1		495	3.9		605	11.8		715	2.4
390	0.1		500	4.5		610	12.0		720	2.0
395	0.1		505	5.0		615	12.2		725	1.8
400	0.1		510	5.4		620	12.2		730	1.5
405	0.1		515	5.8		625	12.1		735	1.3
410	0.1		520	6.1		630	11.8		740	1.1
415	0.2		525	6.3		635	11.5		745	0.9
420	0.3		530	6.6		640	11.0		750	0.8
425	0.5		535	6.8		645	10.5		755	0.7
430	0.8		540	7.1		650	9.9		760	0.6
435	1.2		545	7.4		655	9.2		765	0.5
440	2.1		550	7.7		660	8.5		770	0.4
445	3.7		555	8.0		665	7.9		775	0.4
450	6.0		560	8.3		670	7.1		780	0.3
455	6.2		565	8.6		675	6.5		---	---

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	4/3/2023	4/3/2024
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	146958	10/6/2022	10/6/2023
5	Chroma Power Supply	61604	CHI0371	VBU	VBU
8	Omega Thermohygrometer	OM-CP-RFPRHTEMP2000A	CHI0778	4/3/2023	4/3/2024
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	146767	4/4/2023	4/4/2024
17	Omega thermometer	USB TC08	EQA002615	4/4/2023	4/4/2024
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	SLWS23030N	NA

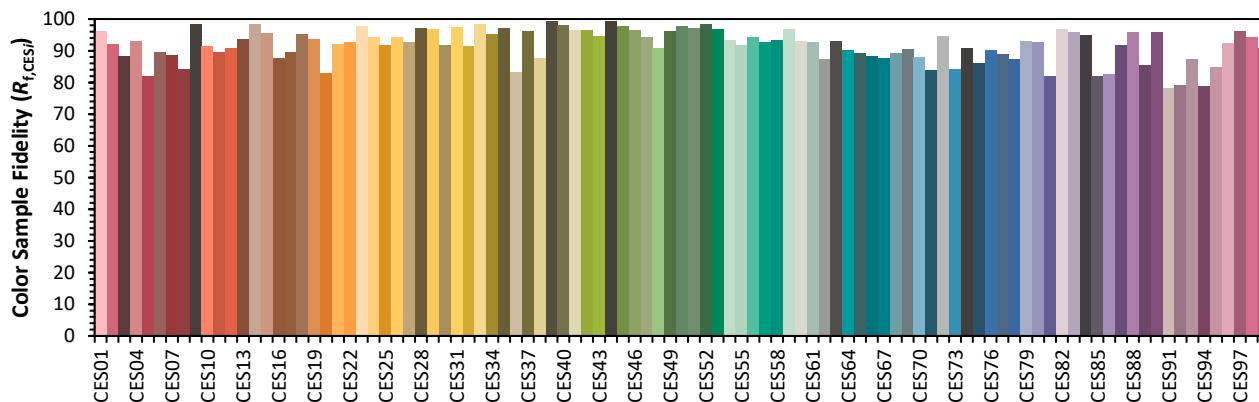
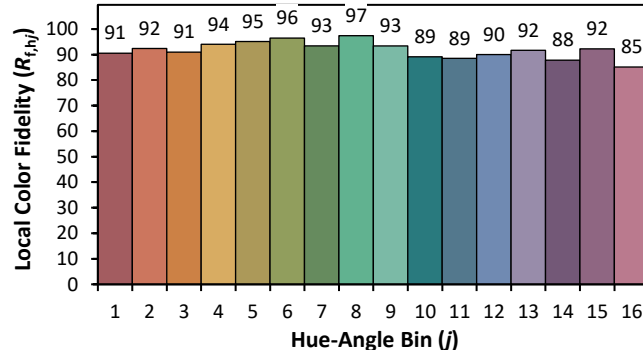
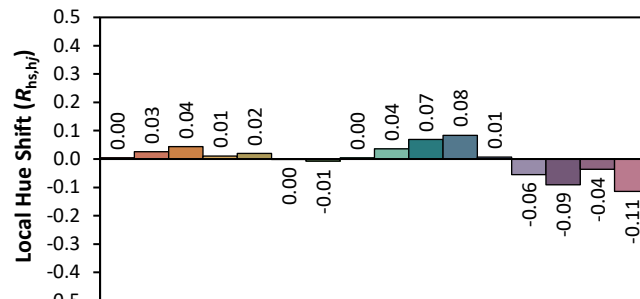
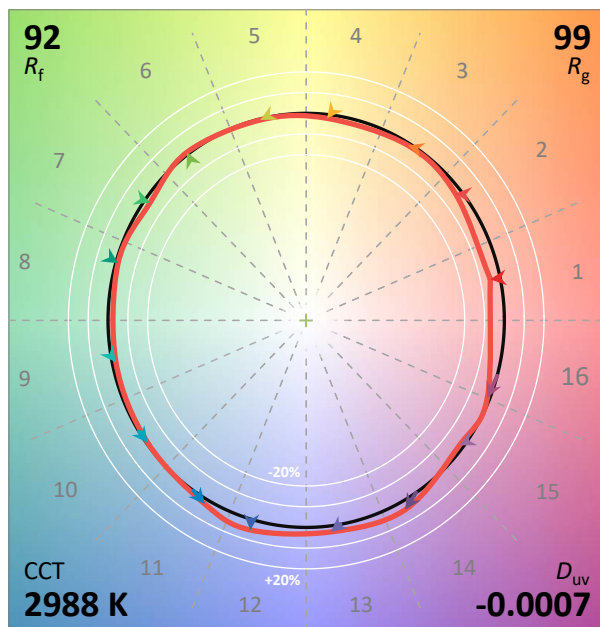
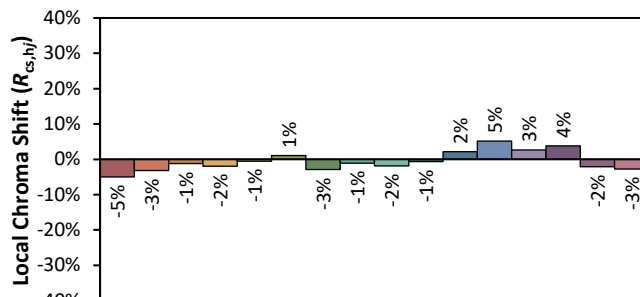
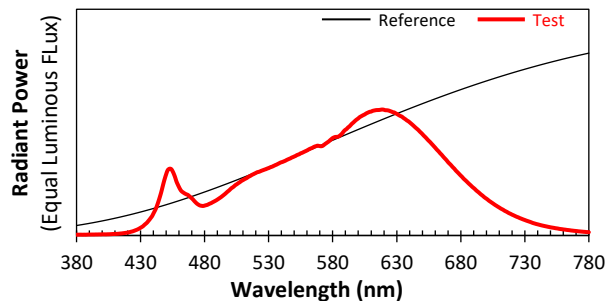
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: VISUAL COMFORT AND COMPANY

Date: 4/12/2023

Model: SLWS23030N



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

 x 0.4368 y 0.4022 u' 0.2513 v' 0.5206