

VISUAL COMFORT & CO.

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

KWFM20727CNB

PROJECT NUMBER

G106149824

REPORT NUMBER

106149824CHI-001

ISSUE DATE

3/24/2025

REVISED DATE

None

TEST DATES

3/18/25-3/24/25

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

106149824CHI-001

MODEL NUMBER(s)

KWFM20727CNB

REPORT RENDERED TO:

VISUAL COMFORT & CO.
7400 LINDER AVENUE
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-01387083-0.

TEST STANDARDS

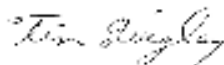
IES LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

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:



T. Quigley
Engineer
Lighting Division

Reviewer:



Jeff Davis
N.A. Technical Lead
Lighting Division

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SAMPLE INFORMATION

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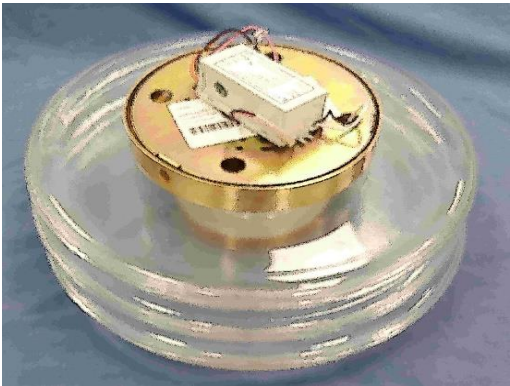
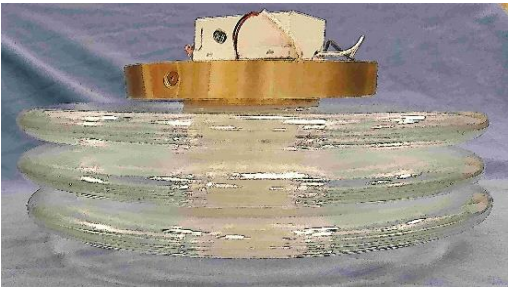
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH03132025124559	KWFM20727CNB	Laurel MD FM 27 CLR NB	Surface Ceiling Mount LED Luminaire	3/13/2025

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	KWFM20727CNB	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	KWFM20727CNB
Product Description:	Laurel MD FM 27 CLR NB
LED Model No.:	GL-N283527-36-CV-200-LJ84 (2700K)
Driver Model No.:	EPT PVD20-C050V40-UNV3-HE-P (AA8513)
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	1088.7	1136.3
Input Power (W) @ 120 (Vac)	18.61	18.64
Lumen Efficacy (lm/W)	58.5	61.0
Input Power Factor @ 120 (Vac)	0.989	0.989

Criteria	Results
Input ATHD (%) @ 120 (Vac)	14.24
Correlated Color Temperature (K)	2600
Color Rendering Index - Ra	96.8
Color Rendering Index - R9	79.8
Duv	-0.0014
Chromaticity Coordinate (x)	0.466
Chromaticity Coordinate (y)	0.408
Chromaticity Coordinate (u')	0.267
Chromaticity Coordinate (v')	0.527
Input Power (W) @ 277 (Vac)	18.21
Input Power Factor (I) @ 277 (Vac)	0.867
Input ATHD (%) @ 277 (Vac)	20.95

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	KWFM20727CNB	NA

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

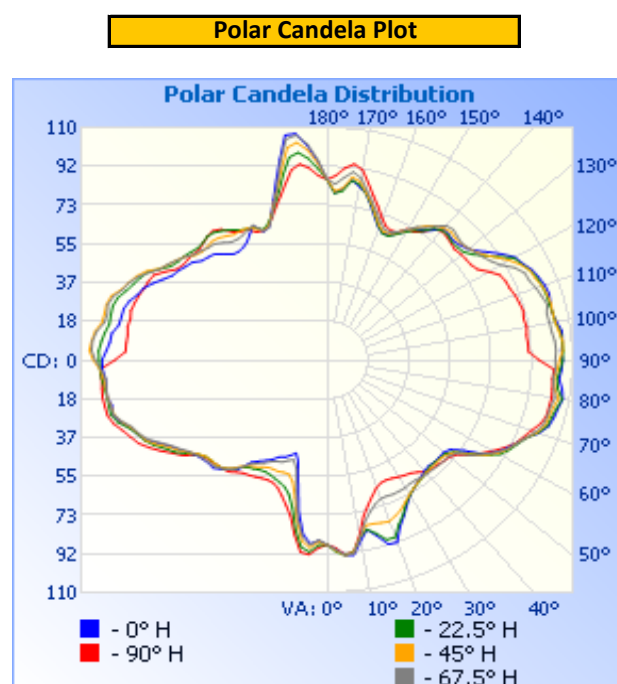
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	119.99	156.8	18.61	0.989

Light Output (lm)	Lumen Efficacy (lm/W)
1088.7	58.5

INTENSITY SUMMARY - CANDELA

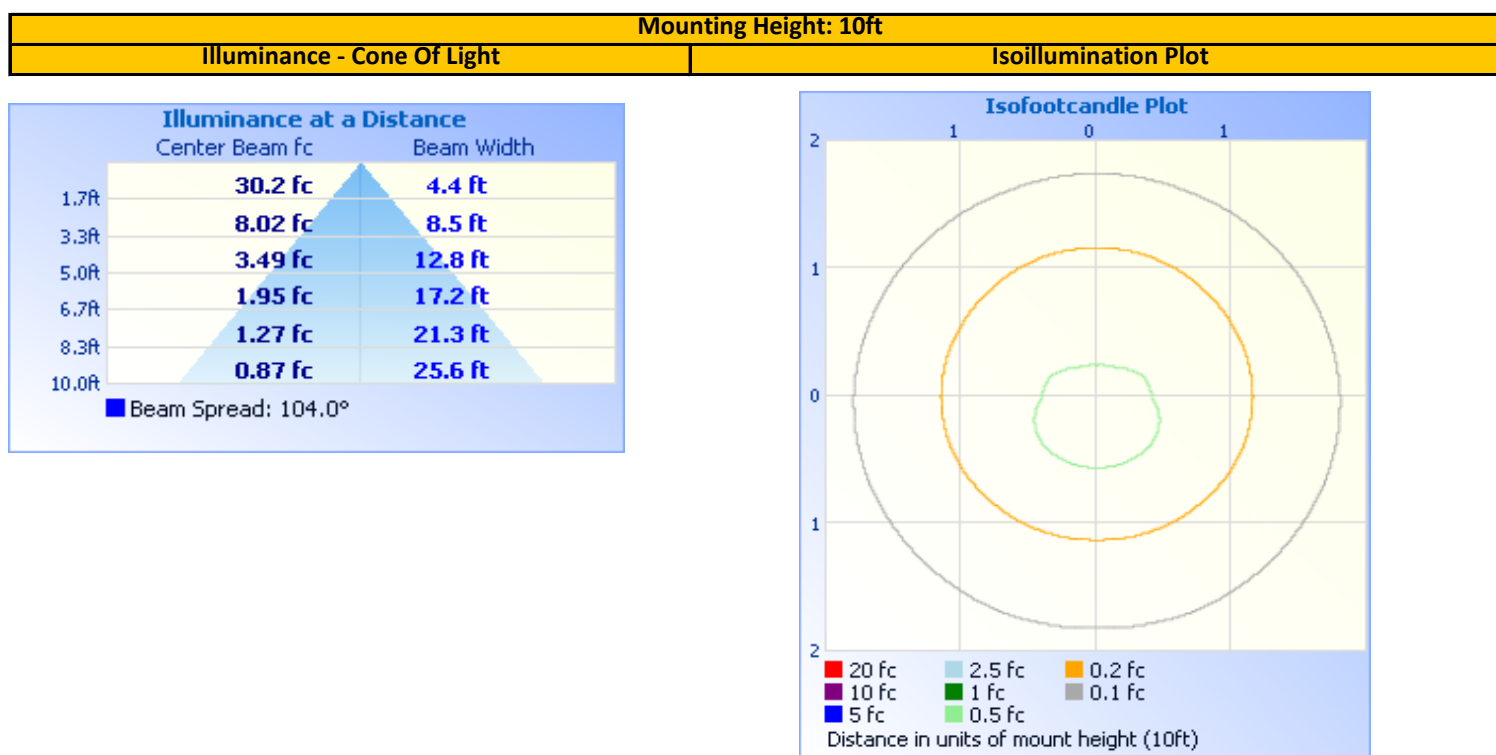
Angle	0	22.5	45	67.5	90
0	87	87	87	87	87
5	93	93	93	93	92
10	87	85	85	85	84
15	86	85	80	74	71
20	92	89	81	70	64
25	81	81	78	70	63
30	74	74	74	70	64
35	71	71	71	69	65
40	68	69	69	70	69
45	68	68	69	70	70
50	68	69	70	71	71
55	75	77	78	78	79
60	87	89	88	87	86
65	93	94	93	94	93
70	101	101	100	99	97
75	105	104	103	102	102
80	107	107	105	104	102
85	104	103	102	102	101
90	105	105	104	102	95
95	106	106	106	102	90
100	104	104	104	101	91
105	103	103	104	102	91
110	104	102	102	100	90
115	101	100	100	98	88
120	97	97	94	90	84
125	89	86	87	85	79
130	82	80	82	83	78
135	80	79	81	83	78
140	81	80	81	83	80
145	75	75	78	77	74
150	70	70	71	71	72
155	65	65	66	67	68
160	67	67	68	70	72
165	76	76	77	78	80
170	83	84	86	88	91
175	82	80	82	87	91
180	85	85	85	85	85

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	59.0	5.4%	90-100	111.2	10.2%
0-40	100.6	9.2%	100-110	105.4	9.7%
0-60	224.0	20.6%	110-120	93.7	8.6%
60-90	308.7	28.4%	120-130	75.1	6.9%
70-100	329.1	30.2%	130-140	60.8	5.6%
90-120	310.2	28.5%	140-150	46.7	4.3%
0-90	532.6	48.9%	150-160	31.7	2.9%
90-180	556.1	51.1%	160-170	22.7	2.1%
0-180	1,088.7	100.0%	170-180	8.9	0.8%

INTEGRATING SPHERE TESTING

REPORT NO. 106149824CHI-001

Test Configuration	Tested Model No.	Pass/Fail/NA
1	KWFM20727CNB	NA

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

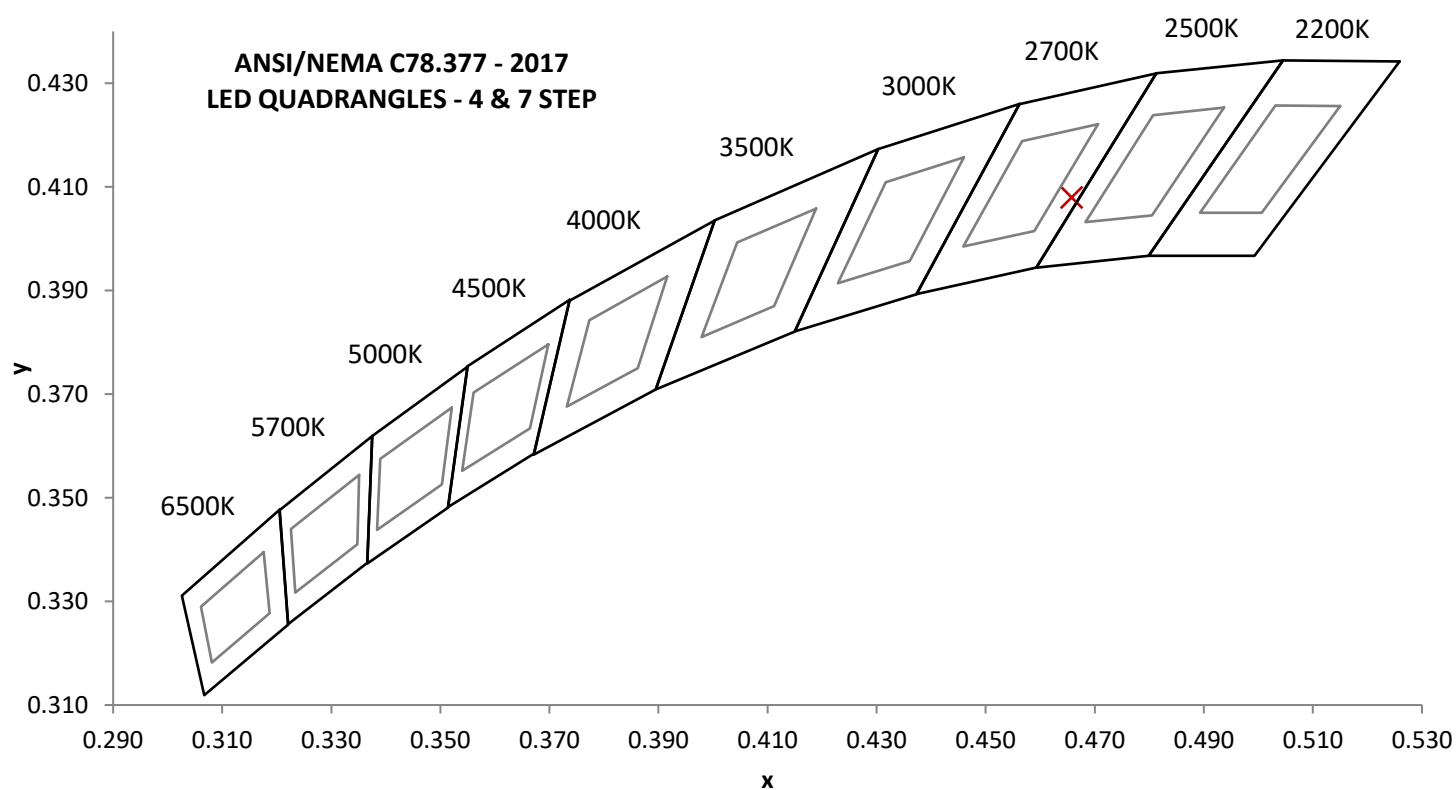
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
120.02	157.1	18.64	0.989	14.24
277.01	75.8	18.21	0.867	20.95

Measured at 120.02(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra	CRI - R9
1136.3	61.0	2600	96.8	79.8

Duv	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0014	0.466	0.408	0.267	0.527

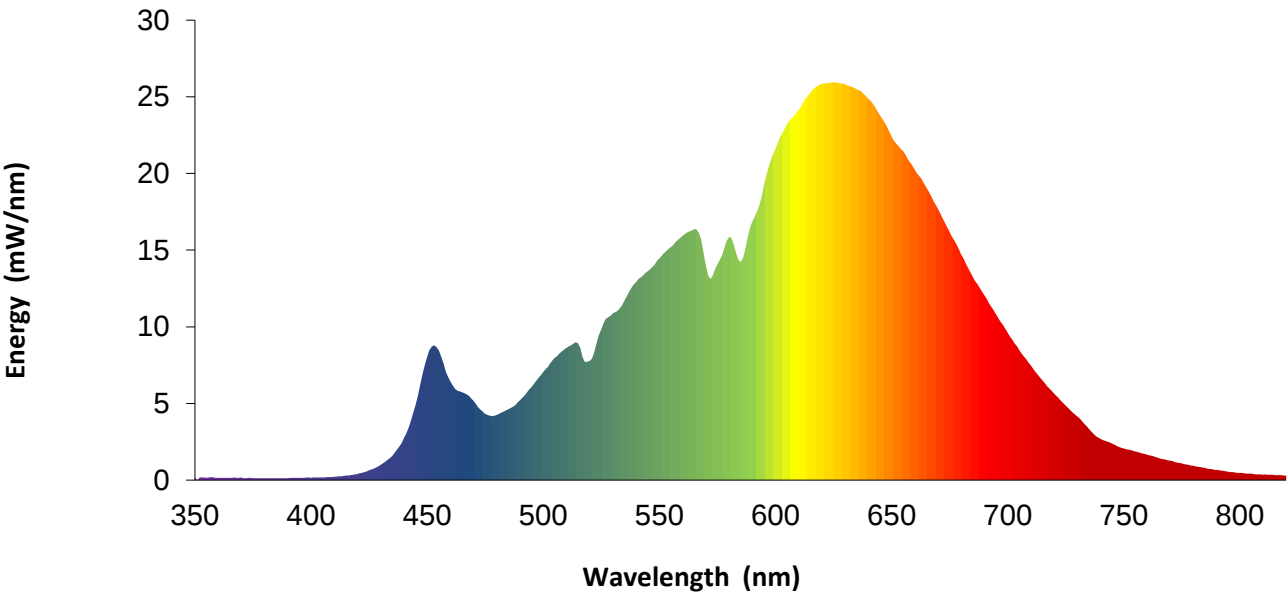


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.2		460	6.4		570	14.1		680	14.7
355	0.2		465	5.7		575	14.1		685	13.3
360	0.2		470	5.2		580	15.8		690	12.1
365	0.2		475	4.3		585	14.2		695	10.8
370	0.2		480	4.3		590	16.8		700	9.6
375	0.1		485	4.6		595	19.2		705	8.5
380	0.1		490	5.2		600	21.6		710	7.5
385	0.1		495	6.1		605	23.2		715	6.5
390	0.1		500	7.0		610	24.1		720	5.6
395	0.2		505	8.0		615	25.3		725	4.9
400	0.2		510	8.6		620	25.8		730	4.2
405	0.2		515	8.9		625	26.0		735	3.4
410	0.2		520	7.8		630	25.8		740	2.7
415	0.3		525	9.8		635	25.5		745	2.4
420	0.4		530	10.9		640	24.9		750	2.1
425	0.6		535	11.7		645	23.8		755	1.9
430	1.0		540	12.9		650	22.4		760	1.7
435	1.6		545	13.6		655	21.4		765	1.4
440	2.7		550	14.5		660	20.3		770	1.3
445	4.9		555	15.2		665	19.1		775	1.1
450	8.0		560	15.9		670	17.7		780	0.9
455	8.4		565	16.4		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	4/2/2024	4/2/2025
2	Omega Thermometer	DPI8-C24	146920	9/30/2024	9/30/2025
3	LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
4	Omega Thermohygrometer	OM-CP-RFPRHTEMP2000A	CHI0764	10/8/2024	10/8/2025
5	Chroma Power Supply	61604	CHI0371	VBU	VBU
8	Omega Thermohygrometer	OM-CP-RFPRHTEMP2000A	CHI0727	10/8/2024	10/8/2025
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	4/10/2024	4/10/2025
17	Omega thermometer	USB TC08	CHI0625	4/10/2024	4/10/2025
26	Xitron Power Analyzer	XT2640	CHI0611	7/17/2024	7/17/2025

Note: Standard sources listed above are traceable to NIST: National Institute of Standards and Technology

REVISION HISTORY

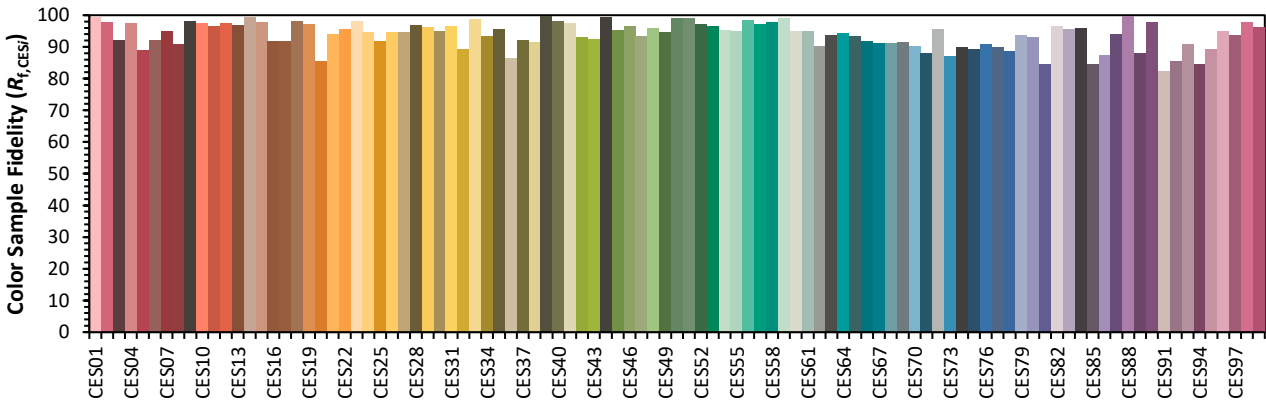
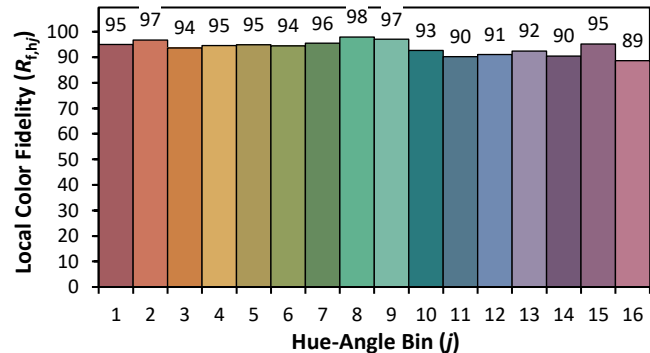
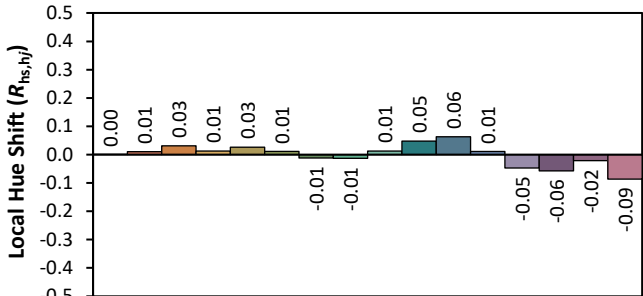
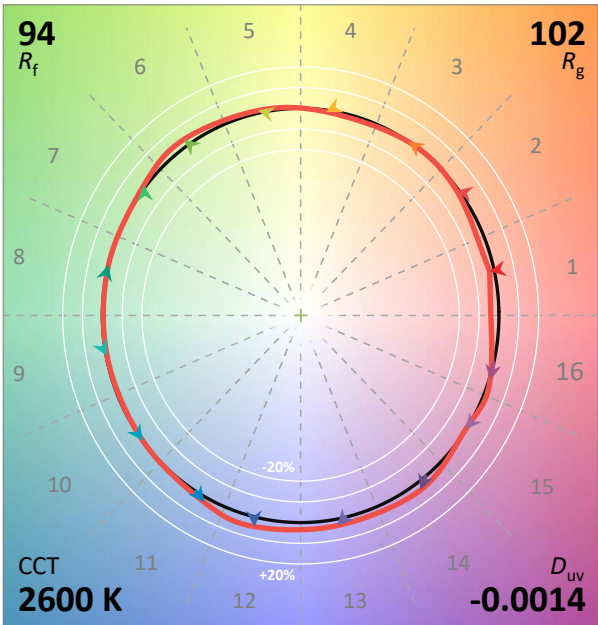
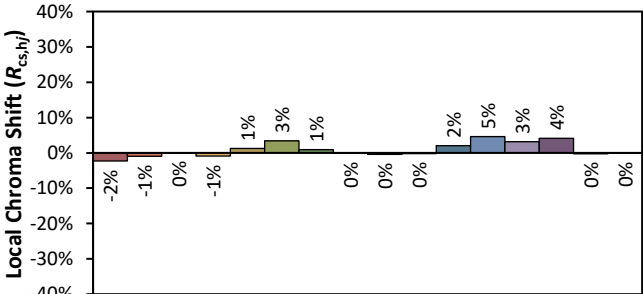
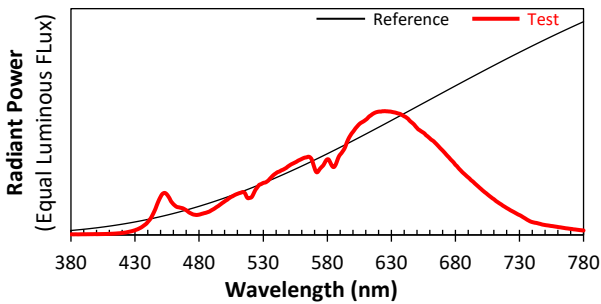
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---	None	---	---	---
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Test Configuration	Tested Model No.	Pass/Fail/NA
1	KWFM20727CNB	NA

ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD
Date: 3/18/2025

Manufacturer: Visual Comfort & Co.
Model: KWFM20727CNB



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

x 0.4657
y 0.4079
u' 0.2675
v' 0.5272