

VISUAL COMFORT AND COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

700TRSPPYLC1RB-LED930

PROJECT NUMBER

G105493071

REPORT NUMBER

105493071CHI-001

ISSUE DATE

7/5/2023

REVISED DATE

None

TEST DATES

2023-06-28.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

105493071CHI-001

MODEL NUMBER(s)

700TRSPPYLC1RB-LED930

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
Engineer
Lighting Division

Reviewer:



Jeff Davis
NA Technical Lead
Lighting Division

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SAMPLE INFORMATION

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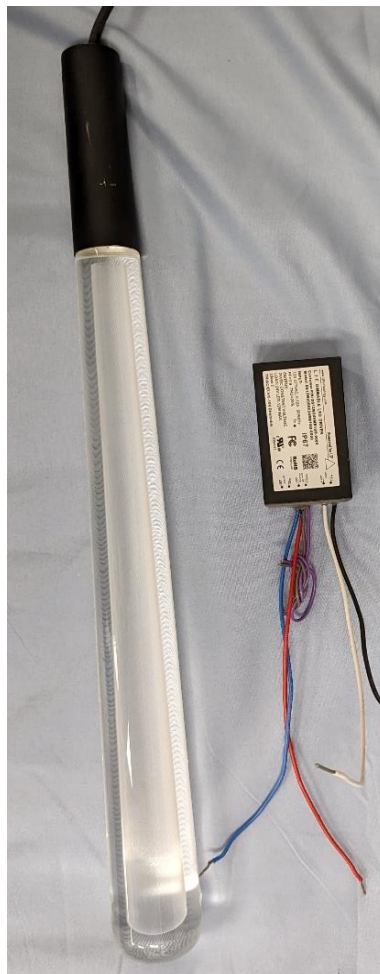
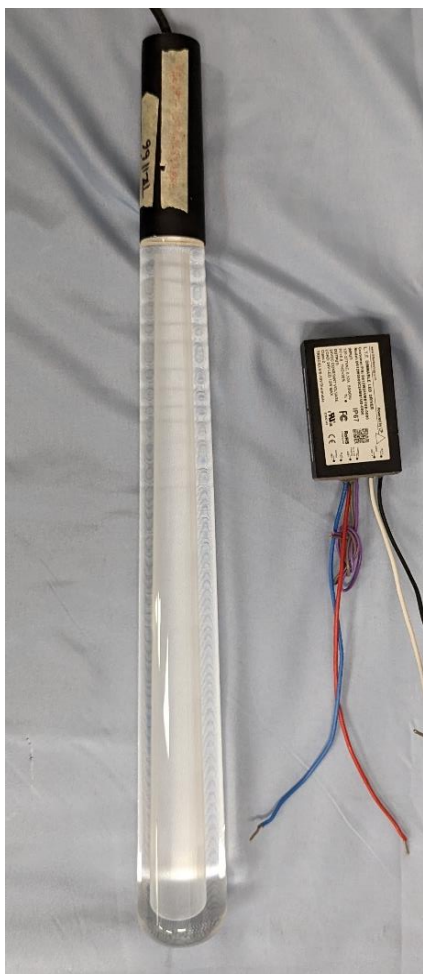
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH06272023084432	700TRSPPYLC1RB-LED930	Trellis Pylon Crystal	Production	6/27/2023

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	700TRSPPYLC1RB-LED930	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700TRSPPYLC1RB-LED930
Product Description:	Trellis Pylon Crystal
LED Model No.:	AA1952
Driver Model No.:	DS12W24VMB1UD-0000 (AA8027)
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	265.7	275.0
Input Power (W) @ 120 (Vac)	6.48	6.39
Lumen Efficacy (lm/W)	41.0	43.1
Input Power Factor () @ 120 (Vac)	0.593	0.593

Criteria	Results
Input ATHD (%) @ 120 (Vac)	26.20
Correlated Color Temperature (K)	3078
Color Rendering Index - Ra ()	90.3
Color Rendering Index - R9 ()	59.1
Duv ()	0.0016
Chromaticity Coordinate (x)	0.434
Chromaticity Coordinate (y)	0.407
Chromaticity Coordinate (u')	0.247
Chromaticity Coordinate (v')	0.522

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	700TRSPPYLC1RB-LED930	NA

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

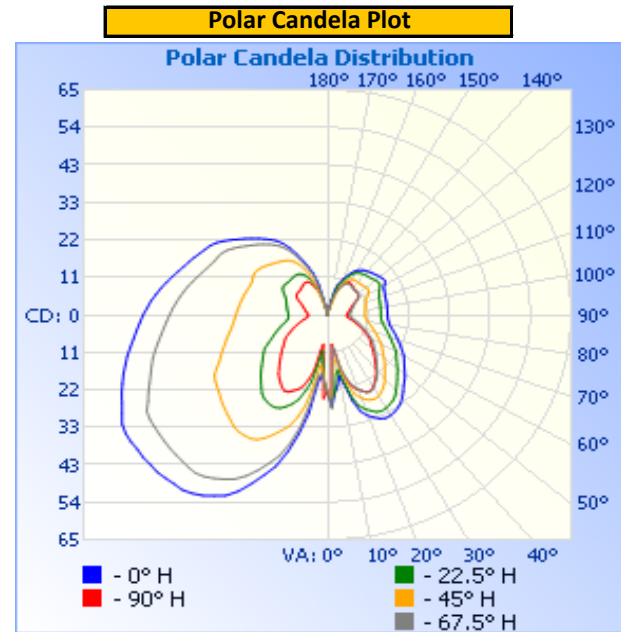
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up	120.05	91.0	6.48	0.593

Light Output (lm)	Lumen Efficacy (lm/W)
265.7	41.0

INTENSITY SUMMARY - CANDELA

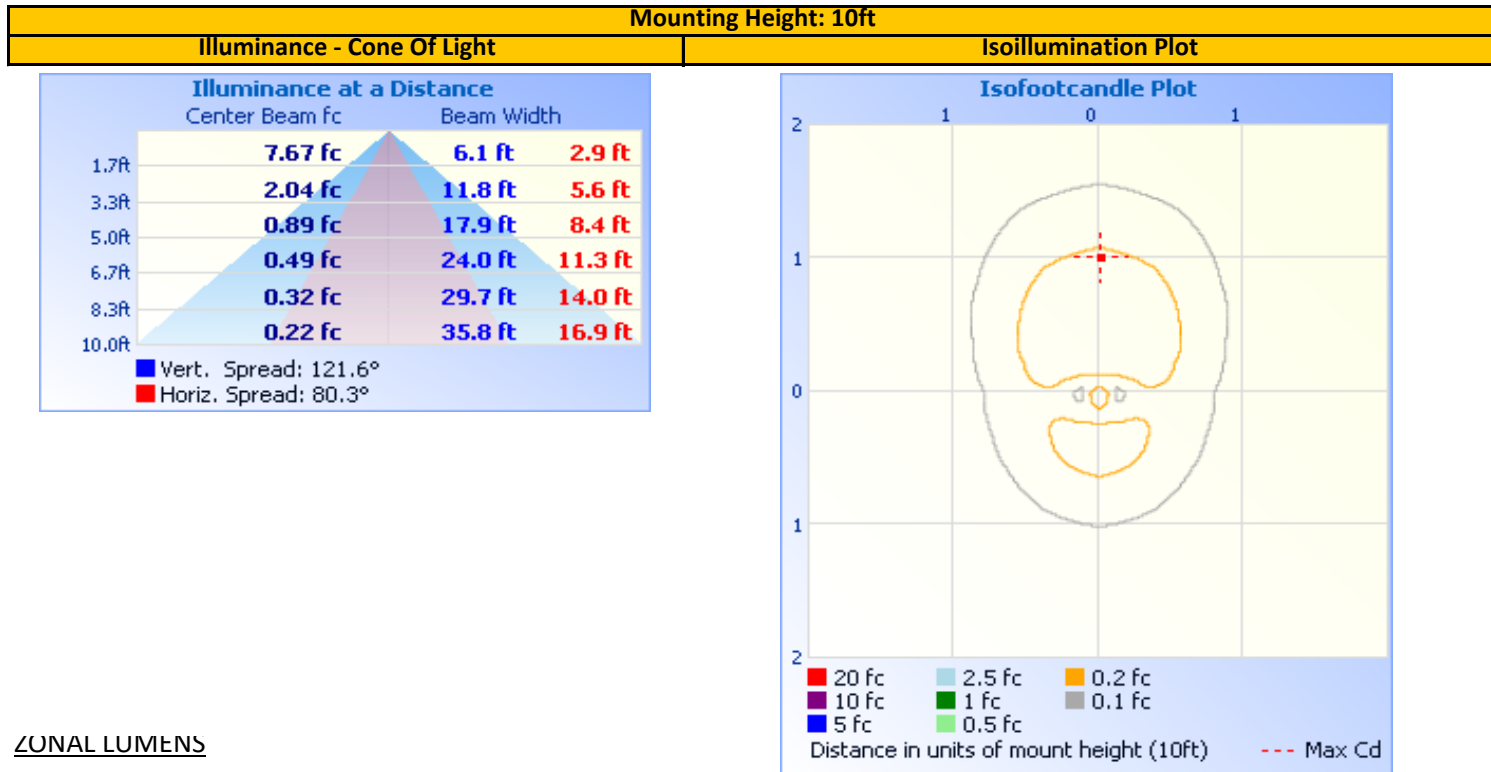
Angle	0	22.5	45	67.5	90
0	22	22	22	22	22
5	23	23	17	14	13
10	18	16	13	10	11
15	26	24	21	18	19
20	31	29	25	23	23
25	33	31	27	25	25
30	34	31	27	24	24
35	33	30	26	23	22
40	31	29	24	21	20
45	29	26	22	18	18
50	27	24	20	17	16
55	25	22	18	15	14
60	24	21	17	13	13
65	22	19	15	12	11
70	20	18	13	10	9
75	18	16	12	8	7
80	17	15	11	7	6
85	16	14	10	6	5
90	16	14	10	6	5
95	16	14	10	6	5
100	16	14	10	6	6
105	16	14	10	7	6
110	16	15	11	7	7
115	17	15	12	8	8
120	18	16	13	10	9
125	18	17	13	10	10
130	18	16	13	10	10
135	17	16	12	10	10
140	16	15	12	10	11
145	16	15	12	11	11
150	15	14	12	10	11
155	12	12	10	9	10
160	10	9	6	7	7
165	7	4	2	3	5
170	1	1	1	0	1
175	0	0	0	0	0
180	0	0	0	0	0

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	Luminaire		Lumens	Total	Lumens
	Lumens	Luminaire		Lumens	Total	Lumens
	Lumens	Luminaire		Lumens	Total	Lumens
	Lumens	Luminaire		Lumens	Total	Lumens
	Lumens	Luminaire		Lumens	Total	Lumens
	Lumens	Luminaire		Lumens	Total	Lumens
	Lumens	Luminaire		Lumens	Total	Lumens
	Lumens	Luminaire		Lumens	Total	Lumens
	Lumens	Luminaire		Lumens	Total	Lumens
Lumens	Luminaire	Lumens	Total	Lumens	Total	Total
Lumens	Luminaire	Lumens	Total	Lumens	Total	Total
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Lumens	Luminaire	Lumens	Total	Lumens	Total	Total
Lumens	Luminaire	Lumens	Total	Lumens	Total	Total
Lumens	Luminaire	Lumens	Total	Lumens	Total	Total
Lumens	Luminaire	Lumens	Total	Lumens	Total	Total
Lumens	Luminaire	Lumens	Total	Lumens		

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700TRSPPYLC1RB-LED930	NA

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

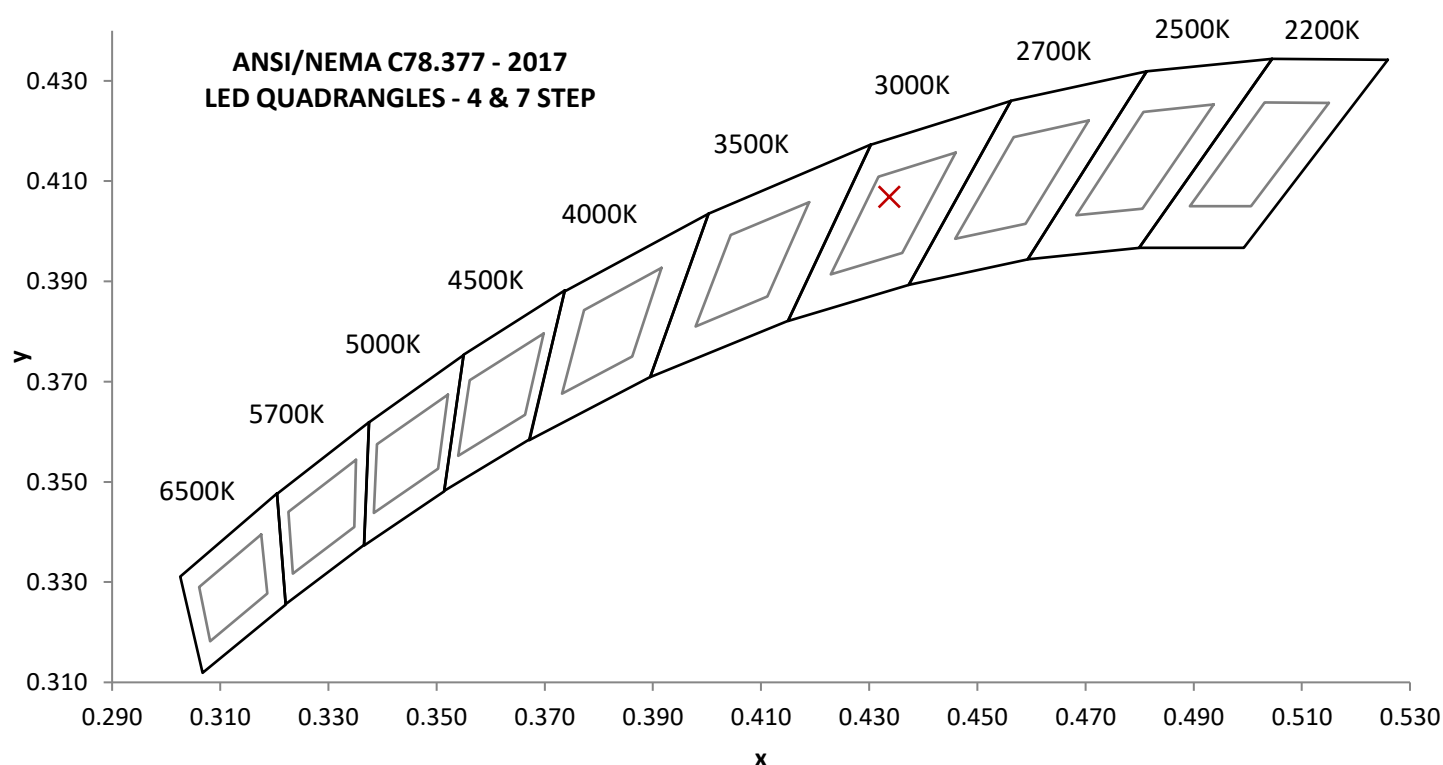
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)	Input ATHD (%)
120.00	89.8	6.39	0.593	26.20

Measured at 120(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (I)	CRI - R9 (I)
275.0	43.1	3078	90.3	59.1

Duv (I)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0016	0.434	0.407	0.247	0.522

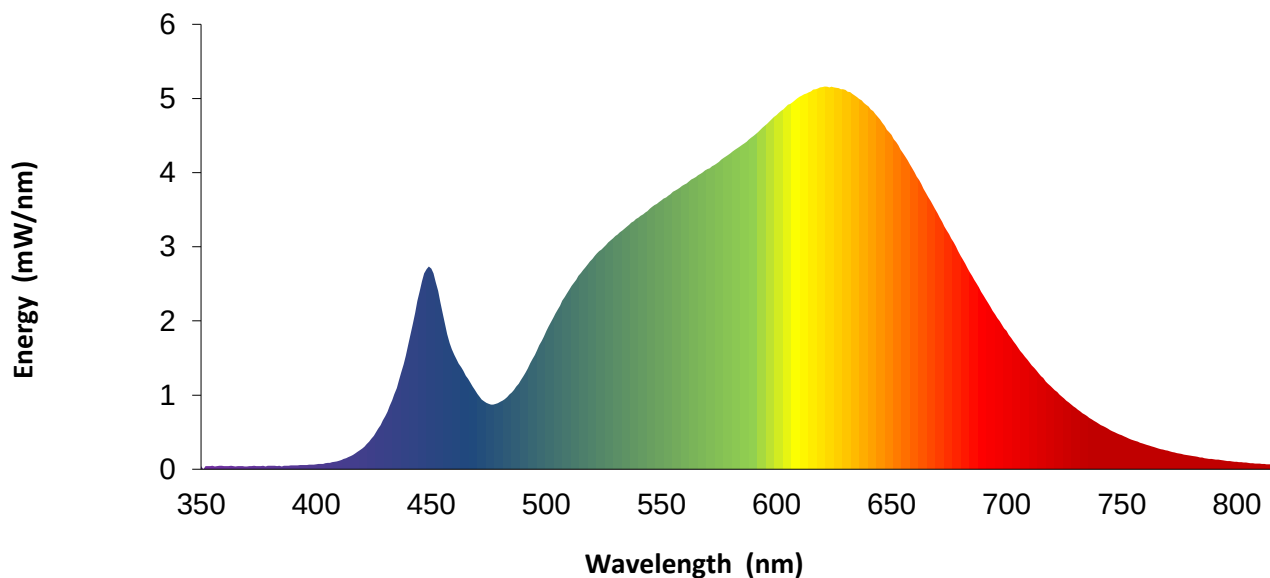


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.0		460	1.5		570	4.0		680	2.9
355	0.0		465	1.3		575	4.1		685	2.6
360	0.0		470	1.0		580	4.3		690	2.3
365	0.0		475	0.9		585	4.4		695	2.1
370	0.0		480	0.9		590	4.5		700	1.9
375	0.0		485	1.0		595	4.6		705	1.6
380	0.0		490	1.3		600	4.8		710	1.4
385	0.0		495	1.5		605	4.9		715	1.3
390	0.1		500	1.9		610	5.0		720	1.1
395	0.1		505	2.2		615	5.1		725	1.0
400	0.1		510	2.4		620	5.2		730	0.8
405	0.1		515	2.6		625	5.1		735	0.7
410	0.1		520	2.8		630	5.1		740	0.6
415	0.2		525	3.0		635	5.0		745	0.5
420	0.3		530	3.1		640	4.9		750	0.5
425	0.5		535	3.3		645	4.7		755	0.4
430	0.7		540	3.4		650	4.5		760	0.3
435	1.1		545	3.5		655	4.3		765	0.3
440	1.7		550	3.6		660	4.0		770	0.2
445	2.4		555	3.7		665	3.7		775	0.2
450	2.7		560	3.8		670	3.5		780	0.2
455	2.1		565	3.9		675	3.2		---	---

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	4/3/2023	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	Omega Thermohygrometer	OM-CP-RFPRHTEMP2000A	CHI0780	4/3/2023	4/3/2024
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	700TRSPPYLC1RB-LED930	NA

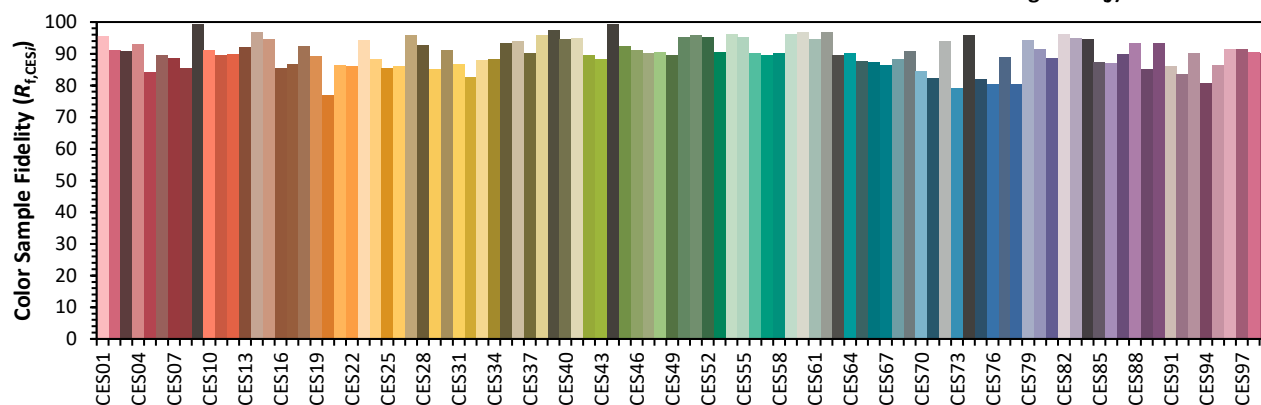
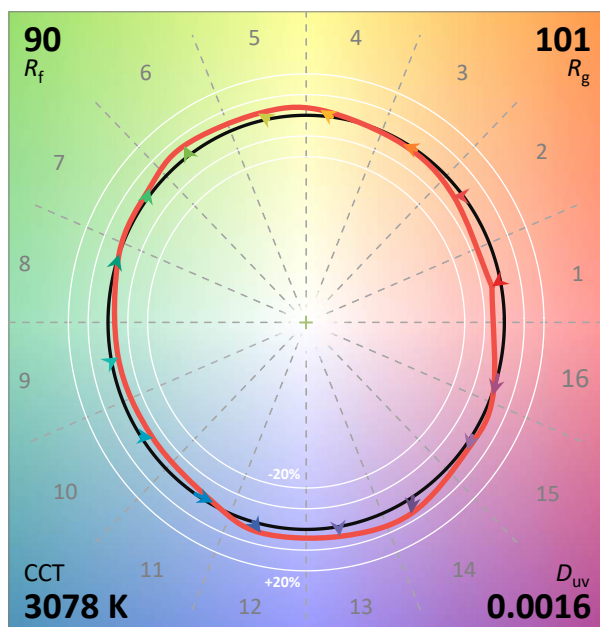
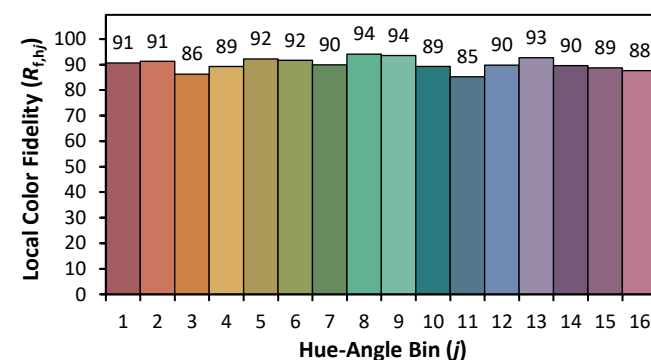
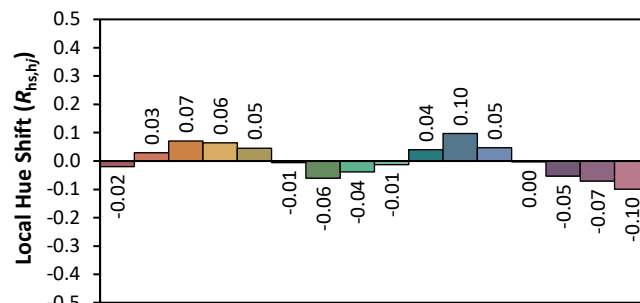
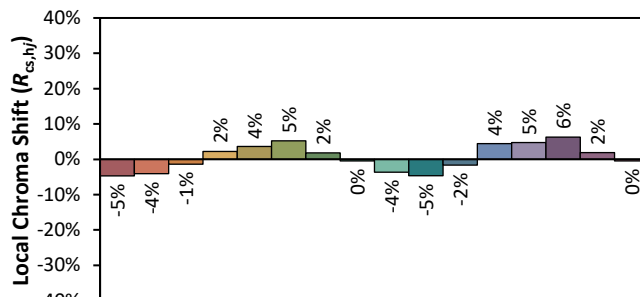
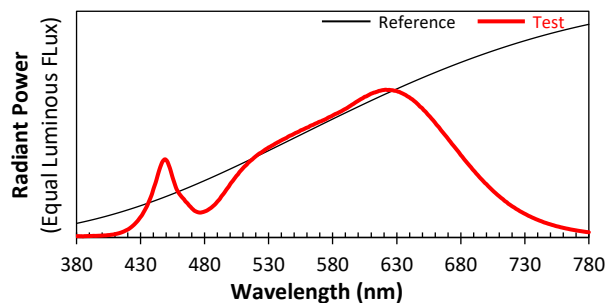
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: VISUAL COMFORT AND COMPANY

Date: 6/28/2023

Model: 700TRSPPYLC1RB-LED930



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

x 0.4337

y 0.4069

u' 0.2473

v' 0.5220