

VISUAL COMFORT AND COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

700PRTKDA16x-LED927

PROJECT NUMBER

G104659241

REPORT NUMBER

104659241CHI-028A

ISSUE DATE

1/4/2022

REVISED DATE

None

TEST DATES

12/16/2021 and 01/04/2022.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104659241CHI-028A

MODEL NUMBER(s)

700PRTKDA16X-LED927

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-01166088-2.

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

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

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

California Energy Commission: Appliance Efficiency Regulations - Title 20

In Charge of Testing:

Reviewer:



Maximilian Carvajal
Engineer
Lighting Division



Jeff Davis
N.A. Technical Lead
Lighting Division

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SAMPLE INFORMATION

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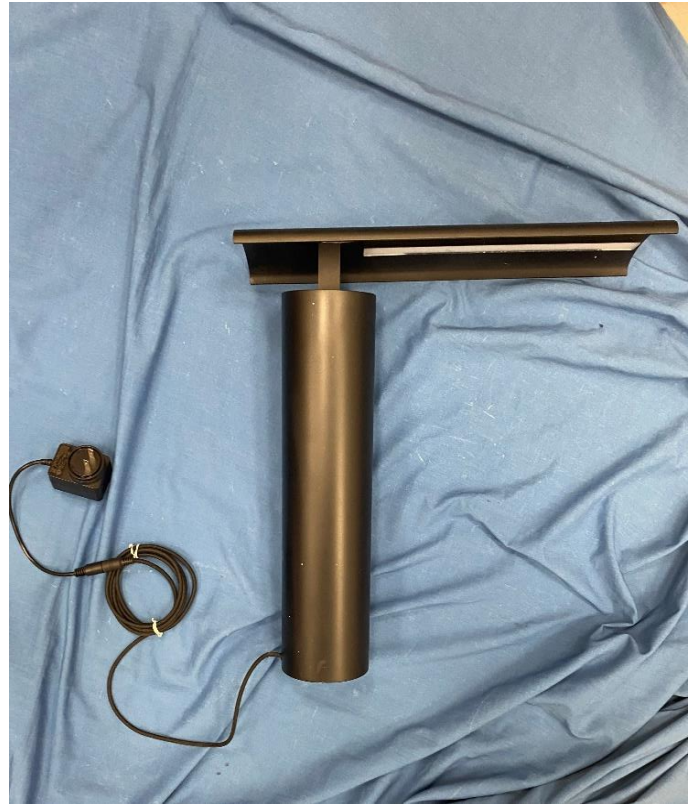
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH12092021012048	700PRTKDA16x-LED927	Kadia 16 Table Lamp	Production	12/9/2021

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	700PRTKDA16x-LED927	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700PRTKDA16x-LED927
Product Description:	Kadia 16 Table Lamp
LED Model No.:	ILSUNG L11-DC-36V-XYX
Driver Model No.:	XINSPower/A122-1201000ID-E-BK (AA4990)
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	726.3	754.8
Input Power (W) @ 120 (Vac)	10.02	10.02
Lumen Efficacy (lm/W)	72.5	75.4
Input Power Factor (PF) @ 120 (Vac)	0.851	0.861

Criteria	Results
Input ATHD (%) @ 120 (Vac)	55.57
Correlated Color Temperature (K)	2738
Color Rendering Index - Ra (I)	94.1
Color Rendering Index - R9 (I)	62.7
Duv (I)	0.0007
Chromaticity Coordinate (x)	0.458
Chromaticity Coordinate (y)	0.412
Chromaticity Coordinate (u')	0.261
Chromaticity Coordinate (v')	0.528
Off State Power (W) @ 120 (Vac)	0.20

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.

OFF STATE POWER TESTING

The off state power test was performed using a power analyzer to record the electrical data during normal stabilized operation. The EUT was set to be in off state mode per instructions from the manufacturer.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700PRTKDA16x-LED927	NA

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

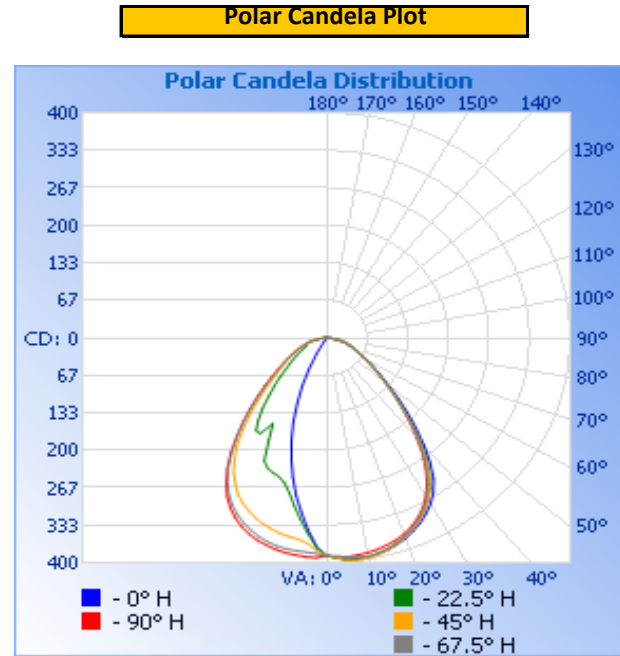
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up	120.05	98.1	10.02	0.851

Light Output (lm)	Lumen Efficacy (lm/W)
726.3	72.5

INTENSITY SUMMARY - CANDELA

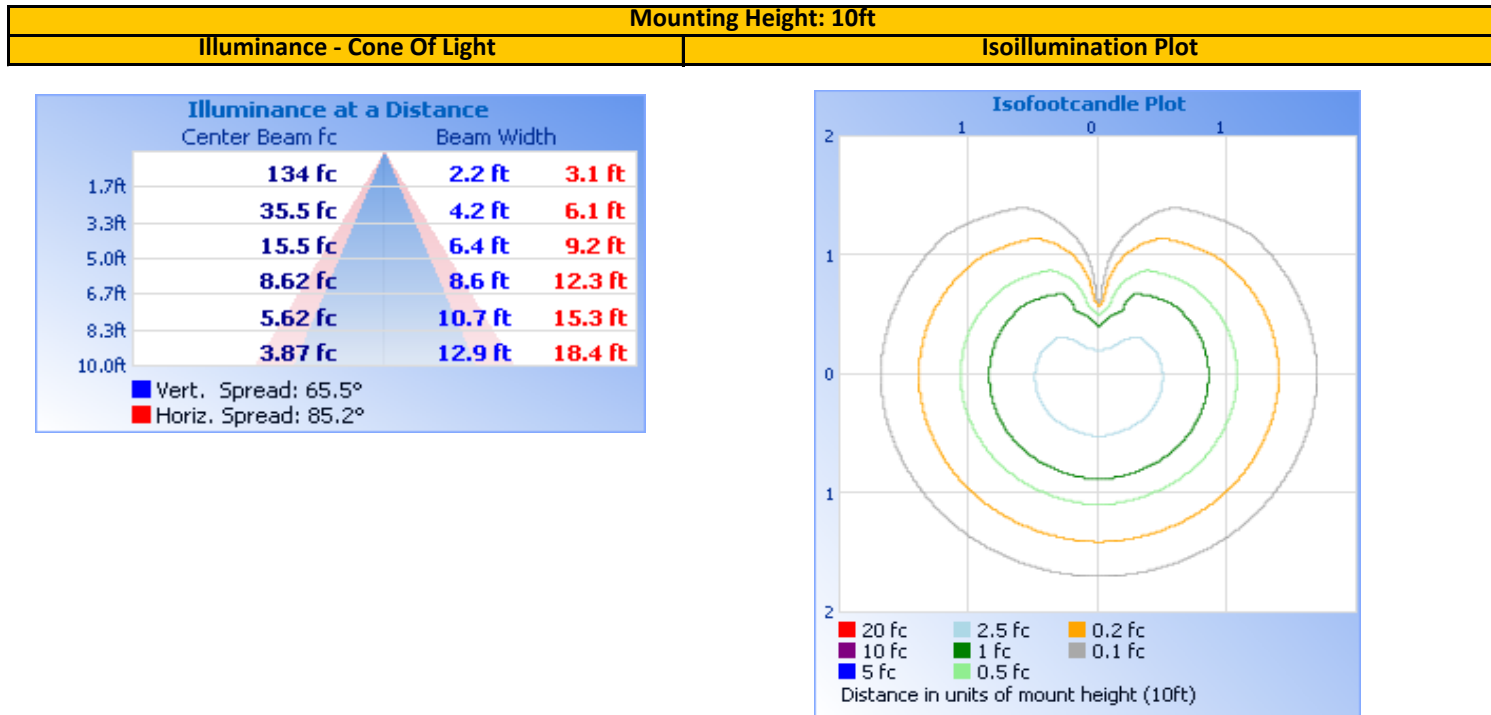
Angle	0	22.5	45	67.5	90
0	387.1	387.1	387.1	387.1	387.1
5	396.2	396.6	396.9	390.8	391.1
10	395.7	395.4	397.6	394.5	388
15	390.1	388.4	390.3	387.9	381.6
20	379.4	375.4	377.4	374.8	371.4
25	363.6	358.2	359.1	355.9	353.5
30	341.4	333.5	333.5	328.8	326
35	306.5	294.2	292.8	286.4	284.1
40	248.3	237.9	235.8	230.7	229.5
45	188.2	179.4	177	174.8	176.5
50	136.2	131.4	130.3	129	131.4
55	98.8	96.2	95.9	95.2	97.2
60	73.4	72.5	71.9	71.4	72.9
65	54.8	55.2	54.6	53.6	55.9
70	41.2	42.5	41.6	40.1	42.5
75	31.2	31.5	30.5	29.5	31.2
80	21.6	20.8	19	12.4	13.2
85	11.2	8.6	7.1	0.7	0.3
90	0	0	0	0	0
95	0	0	0	0	0
100	0	0	0	0	0
105	0	0	0	0	0
110	0	0	0	0	0
115	0	0	0	0	0
120	0	0	0	0	0
125	0	0	0	0	0
130	0	0	0	0	0
135	0	0	0	0	0
140	0	0	0	0	0
145	0	0	0	0	0
150	0	0	0	0	0
155	0	0	0	0	0
160	0	0	0	0	0
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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ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary										
<div></div>	Zone	Lumens	Luminaire	<div></div>	Zone	Lumens	Total	Zone	Lumens	Total
	0-30	282.9	38.9%		0-10	36.0	5.0%	90-100	0.0	0.0%
	0-40	441.0	60.7%		10-20	100.4	13.8%	100-110	0.0	0.0%
	0-60	640.9	88.2%		20-30	146.5	20.2%	110-120	0.0	0.0%
	60-90	85.4	11.8%		30-40	158.2	21.8%	120-130	0.0	0.0%
	70-100	36.0	5.0%		40-50	122.0	16.8%	130-140	0.0	0.0%
	90-120	0.0	0.0%		50-60	77.8	10.7%	140-150	0.0	0.0%
	0-90	726.3	100.0%		60-70	49.4	6.8%	150-160	0.0	0.0%
	90-180	0.0	0.0%		70-80	29.2	4.0%	160-170	0.0	0.0%
	0-180	726.3	100.0%		80-90	6.9	0.9%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700PRTKDA16x-LED927	NA

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

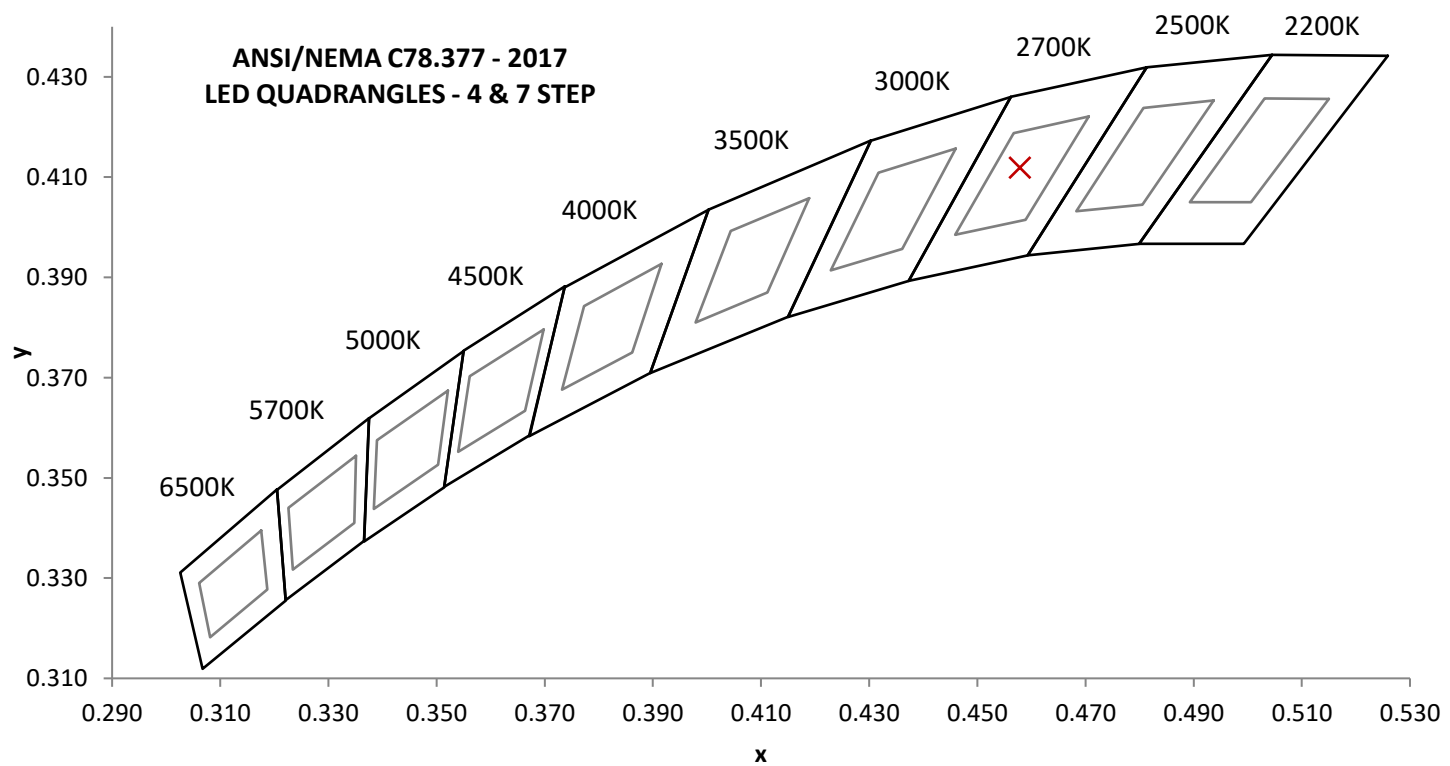
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)	Input ATHD (%)
120.01	97.0	10.02	0.861	55.57

Measured at 120.01(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (I)	CRI - R9 (I)
754.8	75.4	2738	94.1	62.7

Duv (I)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0007	0.458	0.412	0.261	0.528

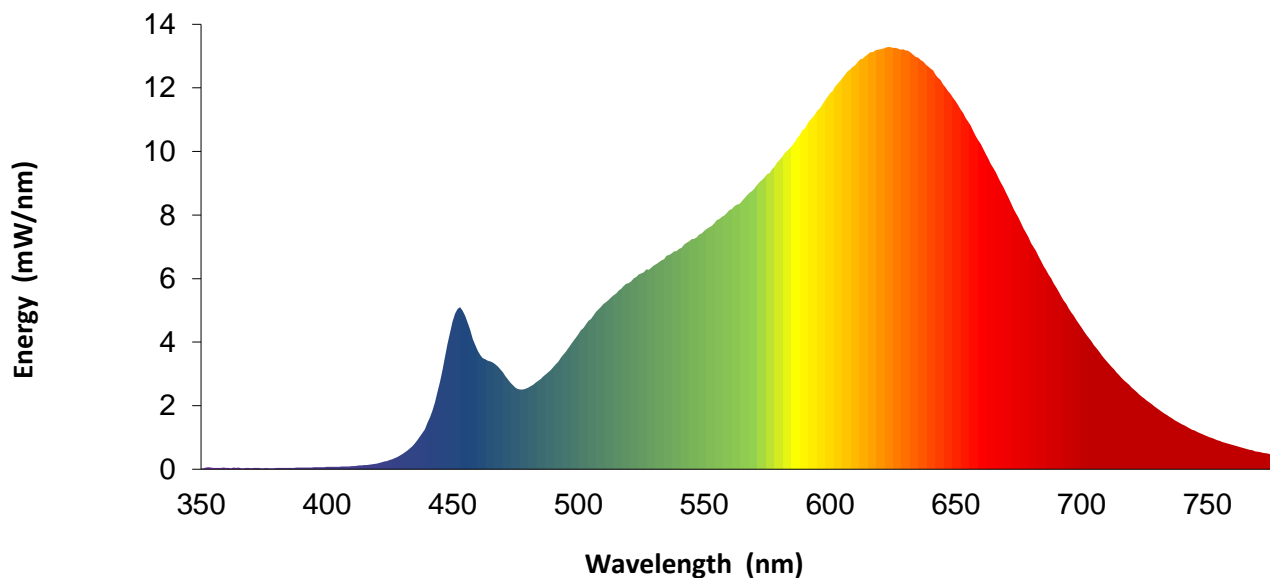


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.0		460	3.7		570	8.8		680	7.1
355	0.0		465	3.4		575	9.3		685	6.4
360	0.0		470	3.0		580	9.7		690	5.7
365	0.1		475	2.6		585	10.2		695	5.1
370	0.0		480	2.6		590	10.7		700	4.5
375	0.0		485	2.8		595	11.3		705	3.9
380	0.0		490	3.2		600	11.8		710	3.4
385	0.0		495	3.7		605	12.3		715	3.0
390	0.1		500	4.2		610	12.7		720	2.6
395	0.1		505	4.7		615	13.1		725	2.2
400	0.1		510	5.2		620	13.2		730	1.9
405	0.1		515	5.5		625	13.3		735	1.7
410	0.1		520	5.9		630	13.2		740	1.4
415	0.1		525	6.2		635	13.0		745	1.2
420	0.2		530	6.4		640	12.6		750	1.0
425	0.3		535	6.7		645	12.1		755	0.9
430	0.5		540	6.9		650	11.6		760	0.8
435	0.8		545	7.2		655	10.9		765	0.7
440	1.5		550	7.5		660	10.2		770	0.6
445	2.8		555	7.8		665	9.5		775	0.5
450	4.7		560	8.2		670	8.7		780	0.4
455	4.8		565	8.4		675	7.9		---	---

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	WT210	146919	7/1/2021	7/1/2022
2	Omega Thermometer	DPI8-C24	146920	10/4/2021	10/4/2022
3	LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
4	Newport Thermohygrometer	iServer	146379	4/13/2021	4/13/2022
5	Chroma Power Supply	61604	CHI0371	VBU	VBU
8	Newport Humidity Recorder	iServer	146961	9/21/2021	9/21/2022
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	4/8/2021	4/8/2022
17	Omega thermometer	USB TC08	EQAH002615	4/6/2021	4/6/2022
26	Xitron Power Analyzer	XT-2640	CHI0611	6/9/2021	6/9/2022

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	700PRTKDA16x-LED927	NA

ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

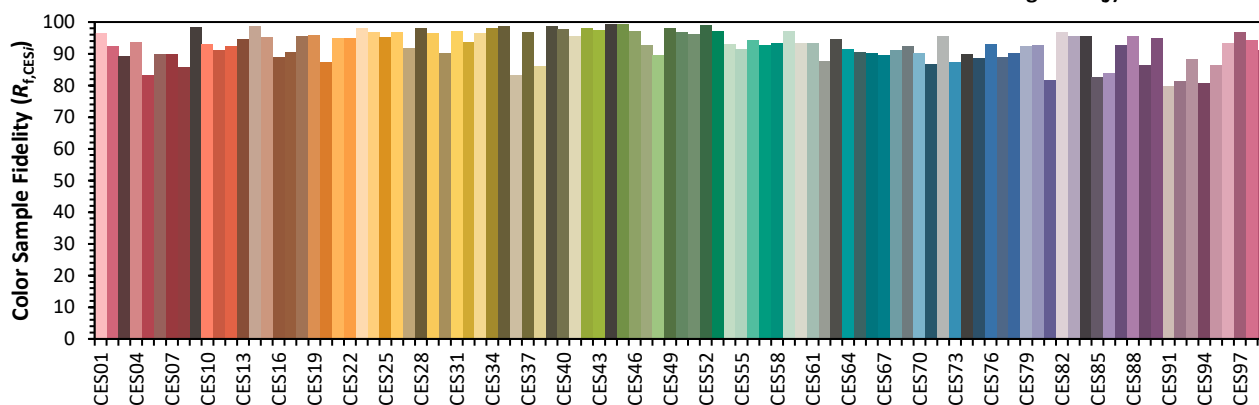
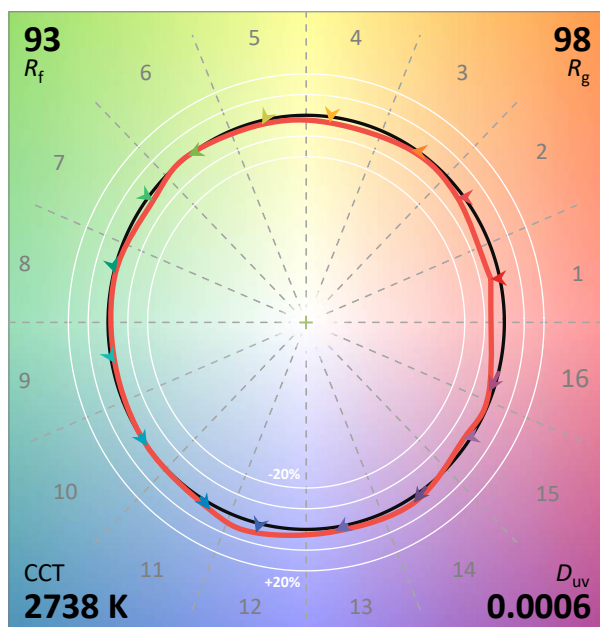
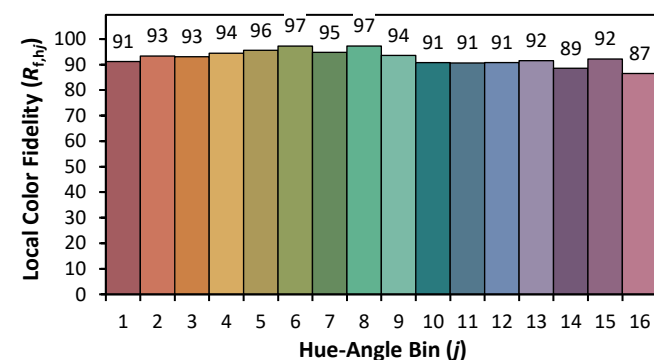
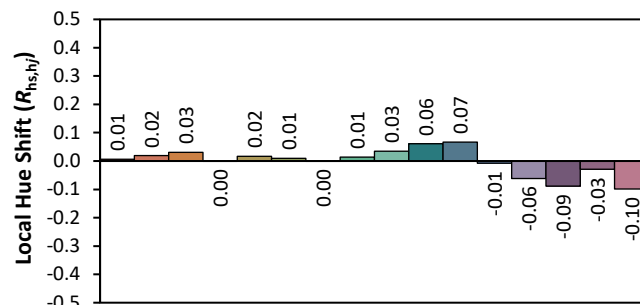
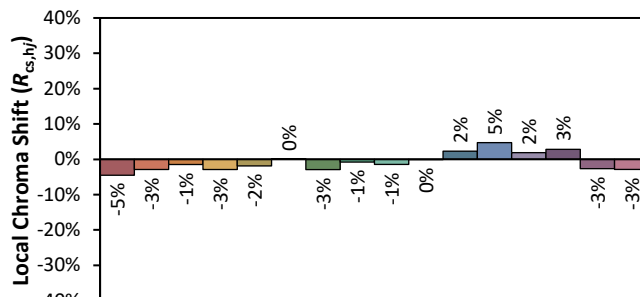
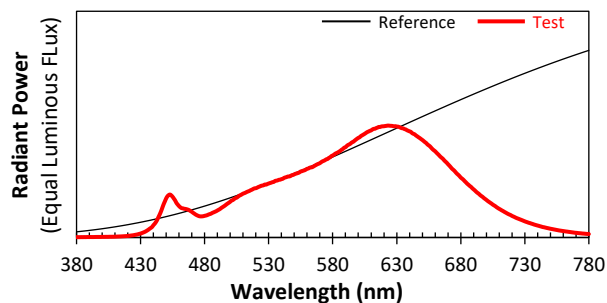
Manufacturer:

VISUAL COMFORT AND COMPANY

Date: 12/16/2021

Model:

700PRTKDA16x-LED927



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

 x 0.4579 y 0.4119 u' 0.2607 v' 0.5275