

# VISUAL COMFORT AND COMPANY TEST REPORT

## SCOPE OF WORK

LED Performance Testing

## MODEL NUMBER

700TDKNW25B-LED930

## PROJECT NUMBER

G104349704

## REPORT NUMBER

104349704CHI-059

## ISSUE DATE

1/18/2021

## REVISED DATE

None

## TEST DATES

01/12/2021 through 01/14/2021.

## DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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**REPORT NUMBER**

104349704CHI-059

**MODEL NUMBER**

700TDKNW25B-LED930

**REPORT RENDERED TO:**

VISUAL COMFORT AND COMPANY  
7400 LINDER AVE  
SKOKIE, IL 60077  
UNITED STATES

**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-01080748-1.

**TEST STANDARDS**

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

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

In Charge of Testing:



Tim Quigley  
Project Engineer  
Lighting Division

Reviewer:



Jeff Davis  
N.A. Technical Lead  
Lighting Division

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**SAMPLE INFORMATION**

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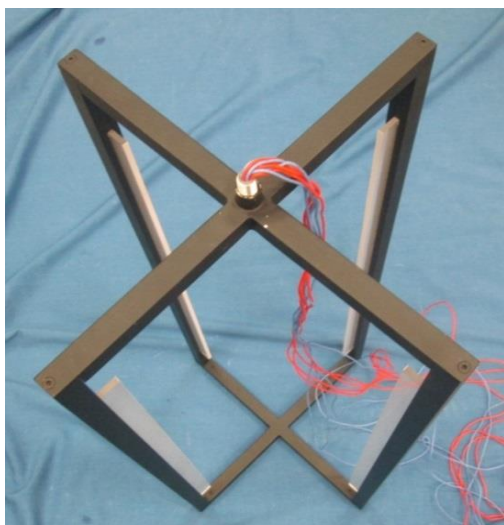
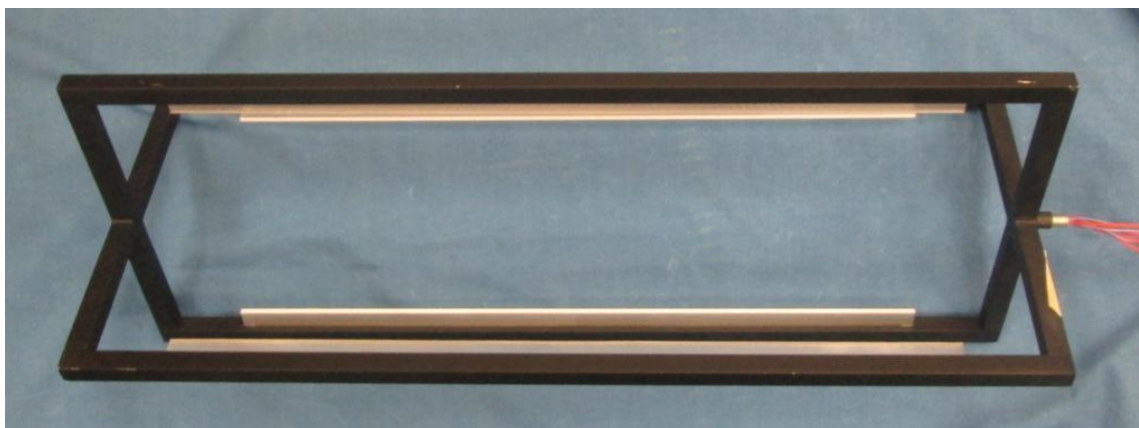
**ITEMS RECEIVED**

Item No.	Control No.	Model No.	Description	Type	Received
1	AH01072021112227-001	700TDKNW25B-LED930	KENWAY 25 PENDANT	Production	1/7/2021

**TESTED SAMPLE CONFIGURATIONS**

Config No.	Tested Model No.	Item Nos. Utilized
1	700TDKNW25B-LED930	1

**SAMPLE PHOTOS - TESTED CONFIGURATIONS**



## SUMMARY

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### PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700TDKNW25B-LED930
Product Description:	KENWAY 25 PENDANT
LED Model No.:	DILUX WW-FLS102T23WW240B-24
Driver Model No.:	MACRON GBLD001
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	696.6	735.9
Input Power (W) @ 120VAC (Vac)	39.82	40.03
Lumen Efficacy (lm/W)	17.5	18.4
Input Power Factor ( ) @ 120VAC (Vac)	0.978	0.977

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	10.01
Correlated Color Temperature (K)	2966
Color Rendering Index - Ra ( )	94.1
Color Rendering Index - R9 ( )	75.0
Duv ( )	-0.0022
Chromaticity Coordinate (x)	0.436
Chromaticity Coordinate (y)	0.398
Chromaticity Coordinate (u')	0.253
Chromaticity Coordinate (v')	0.519
Input Power (W) @ 277 (Vac)	40.32
Input Power Factor ( ) @ 277 (Vac)	0.705
Input ATHD (%) @ 277 (Vac)	47.28

## 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	700TDKNW25B-LED930	NA

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

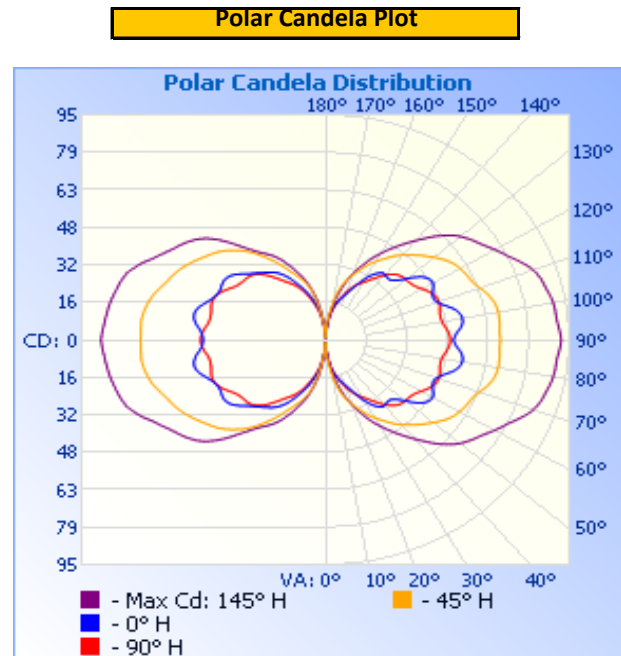
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Horizontal	120.1	339.1	39.82	0.978

Light Output (lm)	Lumen Efficacy (lm/W)
696.6	17.5

**INTENSITY SUMMARY - CANDELA**

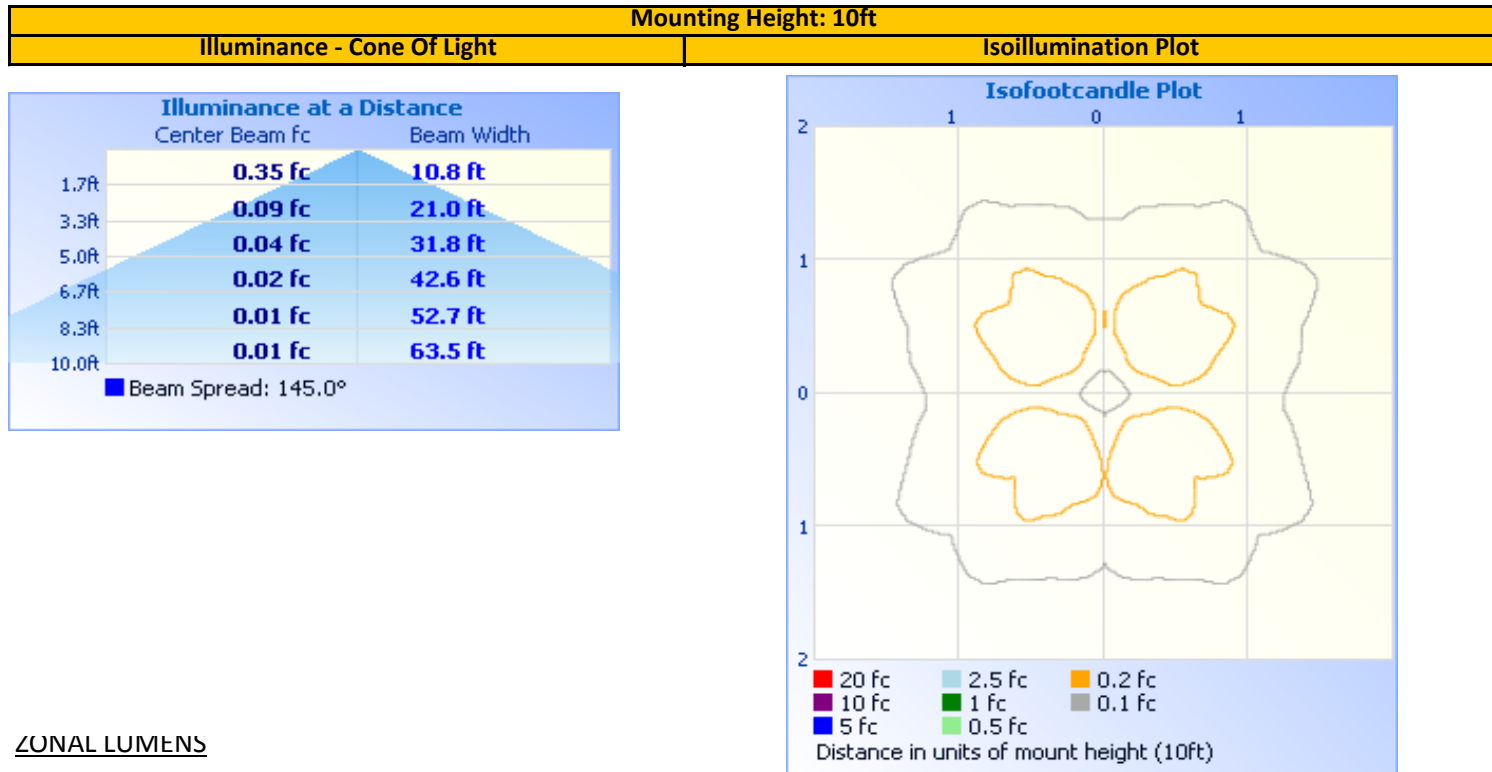
Angle	0	25	45	65	90
0	1	1	1	1	1
5	5	7	7	6	5
10	12	15	15	13	11
15	16	22	23	19	15
20	19	29	28	25	20
25	23	35	33	31	24
30	29	40	38	37	28
35	34	45	42	44	31
40	36	51	47	48	36
45	36	57	51	52	39
50	40	61	54	56	40
55	46	61	58	60	41
60	48	64	60	64	43
65	46	70	62	66	46
70	46	73	64	69	47
75	51	72	67	71	46
80	54	72	68	72	46
85	53	74	68	72	48
90	50	76	68	72	49
95	53	74	68	72	48
100	54	72	68	72	46
105	51	72	67	71	46
110	46	73	64	69	47
115	46	70	62	66	46
120	48	64	60	64	43
125	46	61	58	60	41
130	40	61	54	56	40
135	36	57	51	52	39
140	36	51	47	48	36
145	34	45	42	44	31
150	29	40	38	37	28
155	23	35	33	31	24
160	19	29	28	25	20
165	16	22	23	19	15
170	12	15	15	13	11
175	5	7	7	6	5
180	1	1	1	1	1

Entire luminous intensity matrix found in .IES file



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ILLUMINANCE SUMMARY



ZONAL LUMENS

Lumen Summary											

**INTEGRATING SPHERE TESTING**

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700TDKNW25B-LED930	NA

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

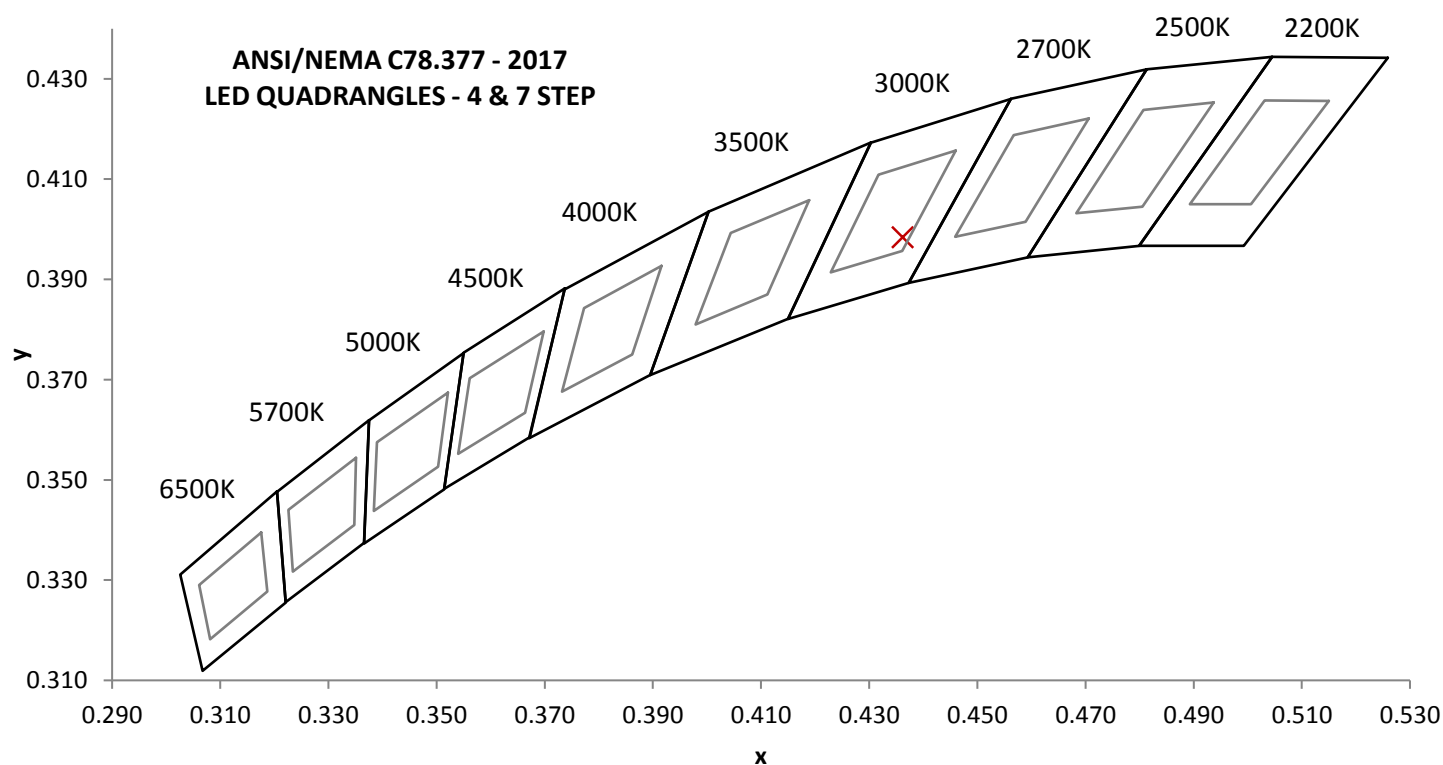
Base Orientation
Horizontal

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)	Input ATHD (%)
120.00	341.4	40.03	0.977	10.01
277.04	206.3	40.32	0.705	47.28

**Measured at 120(Vac)**

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (I)	CRI - R9 (I)
735.9	18.4	2966	94.1	75.0

Duv (I)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0022	0.436	0.398	0.253	0.519

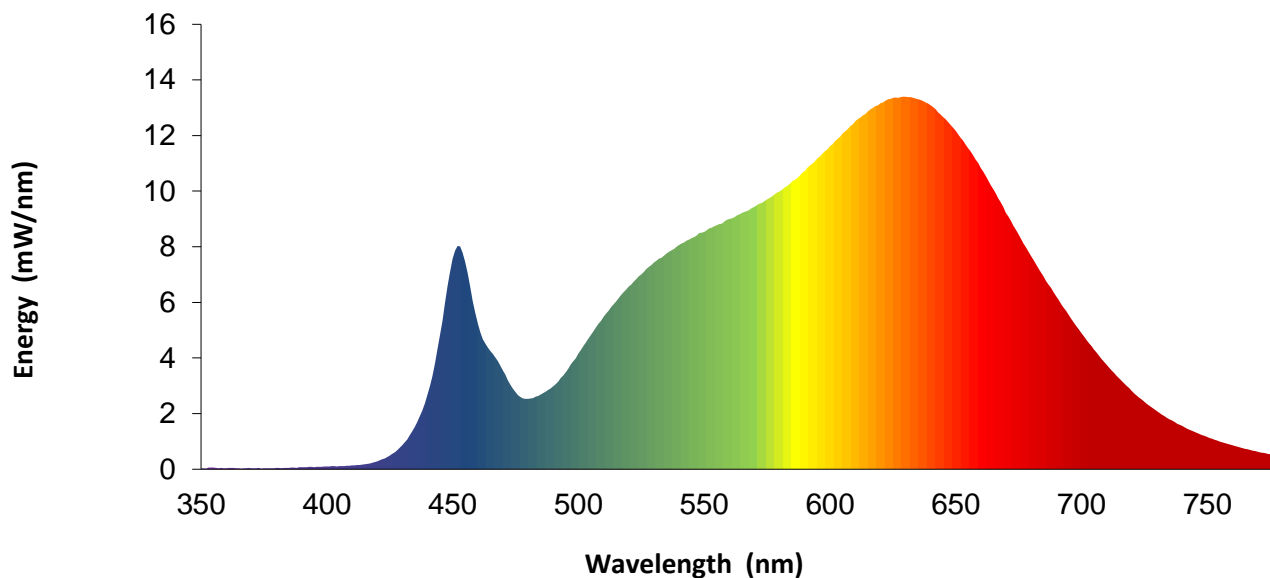


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.0		460	5.3		570	9.4		680	7.7
355	0.1		465	4.3		575	9.7		685	6.9
360	0.0		470	3.6		580	10.0		690	6.2
365	0.0		475	2.8		585	10.4		695	5.5
370	0.0		480	2.5		590	10.7		700	4.9
375	0.0		485	2.7		595	11.2		705	4.3
380	0.0		490	3.0		600	11.6		710	3.8
385	0.1		495	3.5		605	12.1		715	3.3
390	0.1		500	4.2		610	12.5		720	2.8
395	0.1		505	4.8		615	12.9		725	2.4
400	0.1		510	5.5		620	13.2		730	2.1
405	0.1		515	6.0		625	13.4		735	1.8
410	0.1		520	6.6		630	13.4		740	1.6
415	0.2		525	7.0		635	13.3		745	1.3
420	0.3		530	7.4		640	13.1		750	1.2
425	0.5		535	7.8		645	12.7		755	1.0
430	0.9		540	8.1		650	12.2		760	0.9
435	1.5		545	8.3		655	11.6		765	0.7
440	2.7		550	8.5		660	10.8		770	0.6
445	4.8		555	8.8		665	10.1		775	0.5
450	7.6		560	9.0		670	9.2		780	0.5
455	7.5		565	9.2		675	8.5		---	---

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	WT210	146919	7/1/2020	7/1/2021
2	Omega Thermometer	DPI8-C24	146920	10/1/2020	10/1/2021
3	LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
4	Newport Thermohygrometer	iServer	146958	9/30/2020	9/30/2021
5	Pacific AC Power Supply	118-ACX	CHI0153	VBV	VBV
6	Sorenson DC Power Supply	XHR 150-7	146922	VBV	VBV
8	Newport Humidity Recorder	iServer	146961	9/3/2020	9/3/2021
9	Labsphere Spectroradiometer	CDS2600	CHI0539	VBV	VBV
10	3 Meter Sphere	SPR600	CHI0088	VBV	VBV
11	Elgar AC Power Supply	CW1251	146112	VBV	VBV
12	Sorenson DC Power Supply	XFR150-8	146846	VBV	VBV
13	Yokogawa Power Meter	WT1600	146769	4/6/2020	4/6/2021
14	Extech K Temperature Meter	421502	CHI0476	10/1/2020	10/1/2021

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	700TDKNW25B-LED930	NA

## ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

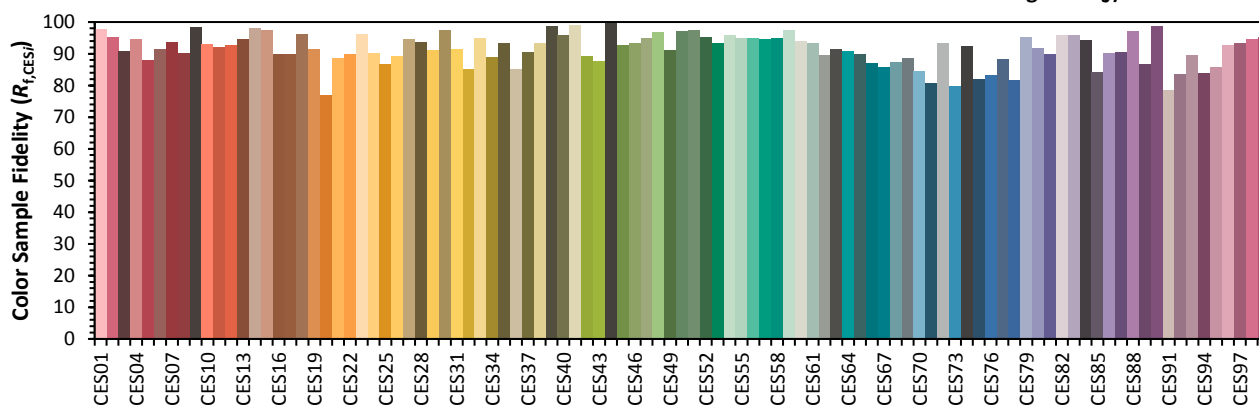
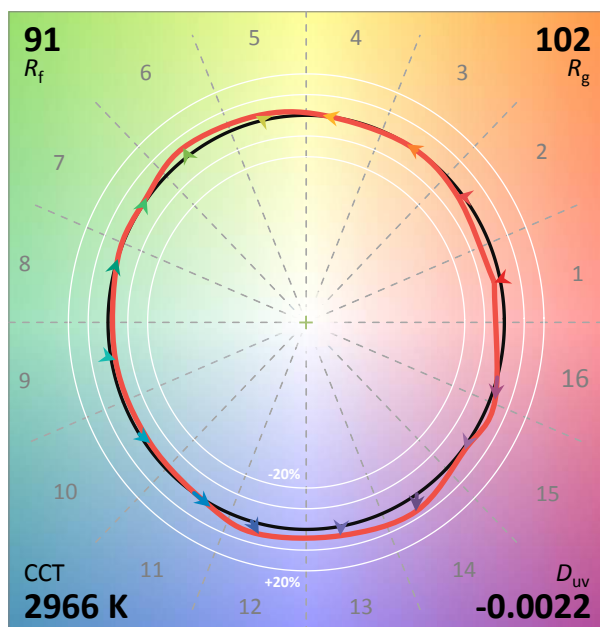
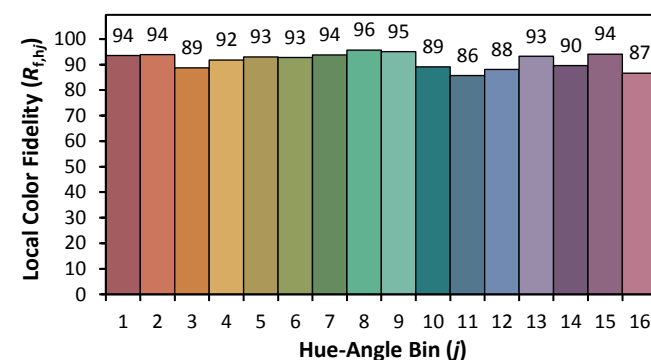
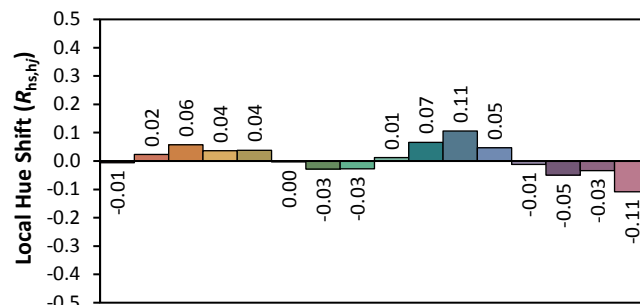
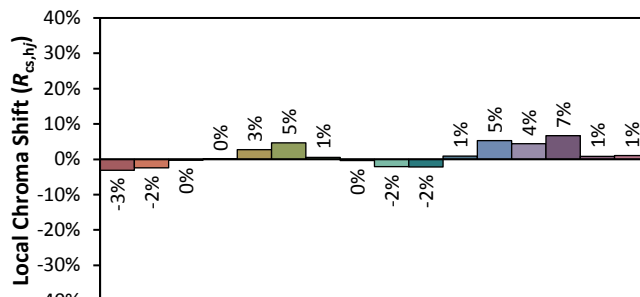
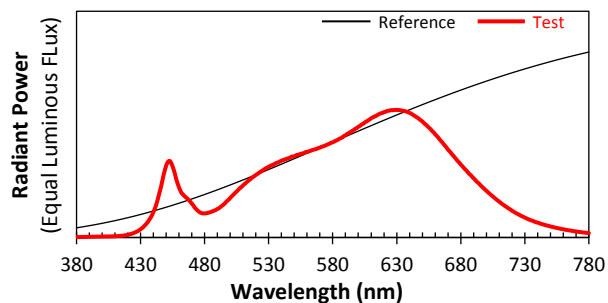
Manufacturer:

VISUAL COMFORT AND COMPANY

Date: 1/12/2021

Model:

700TDKNW25B-LED930



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

 $x$  0.4362 $y$  0.3984 $u'$  0.2525 $v'$  0.5190