

# VISUAL COMFORT AND CO. TEST REPORT

## SCOPE OF WORK

LED Performance Testing

## MODEL NUMBER

700TDKNW42B-LED930

## PROJECT NUMBER

G104349704

## REPORT NUMBER

104349704CHI-062

## ISSUE DATE

1/18/2021

## REVISED DATE

None

## TEST DATES

1/14/2021 through 1/17/2021

## DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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**REPORT NUMBER**

104349704CHI-062

**MODEL NUMBER**

700TDKNW42B-LED930

**REPORT RENDERED TO:**

VISUAL COMFORT AND CO.

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

ANSI/UL 1598-2018: Standard for Safety - Luminaires

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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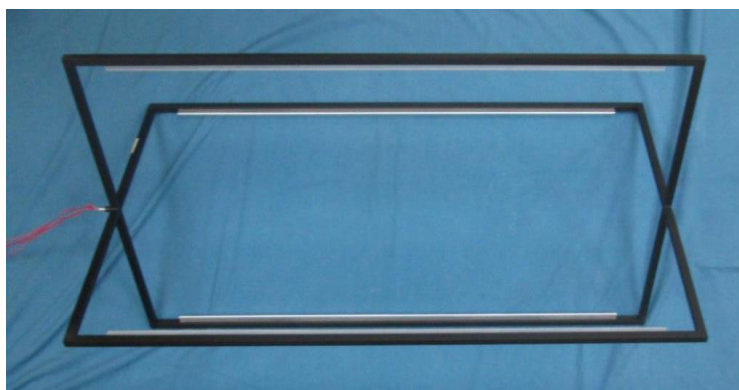
**ITEMS RECEIVED**

Item No.	Control No.	Model No.	Description	Type	Received
1	AH01072021112227-004	700TDKNW42B-LED930	KENWAY 42 PENDANT	Production	1/7/2021

**TESTED SAMPLE CONFIGURATIONS**

Config No.	Tested Model No.	Item Nos. Utilized
1	700TDKNW42B-LED930	1

**SAMPLE PHOTOS - TESTED CONFIGURATIONS**



## SUMMARY

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### PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700TDKNW42B-LED930
Product Description:	KENWAY 42 PENDANT
LED Model No.:	DILUX WW-FLS102T23WW240B-24
Driver Model No.:	MACRON GBLD001
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	1748.9	1789.4
Input Power (W) @ 120VAC (Vac)	69.27	69.36
Lumen Efficacy (lm/W)	25.2	25.8
Input Power Factor ( ) @ 120VAC (Vac)	0.989	0.988

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	8.14
Correlated Color Temperature (K)	2919
Color Rendering Index - Ra ( )	94.6
Color Rendering Index - R9 ( )	76.1
Duv ( )	-0.0029
Chromaticity Coordinate (x)	0.439
Chromaticity Coordinate (y)	0.397
Chromaticity Coordinate (u')	0.254
Chromaticity Coordinate (v')	0.519
Input Power (W) @ 277 (Vac)	59.41
Input Power Factor ( ) @ 277 (Vac)	0.888
Input ATHD (%) @ 277 (Vac)	18.51

### 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	700TDKNW42B-LED930	NA

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

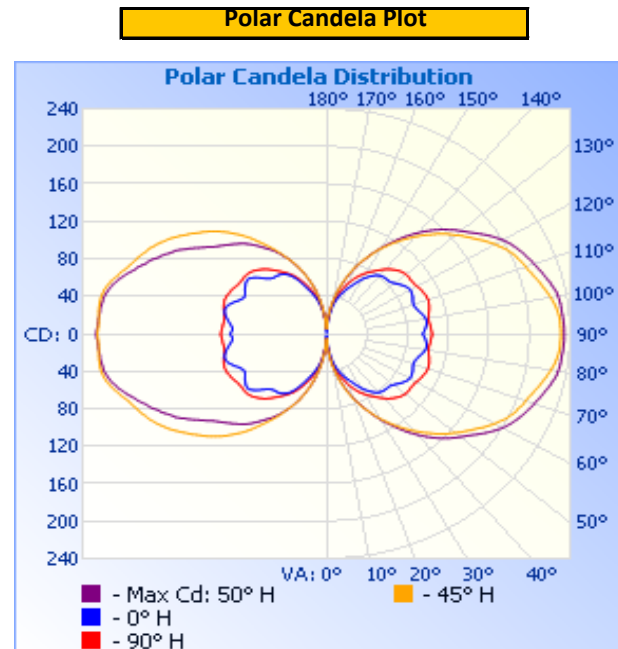
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Horizontal	120.0	583.6	69.27	0.989

Light Output (lm)	Lumen Efficacy (lm/W)
1748.9	25.2

**INTENSITY SUMMARY - CANDELA**

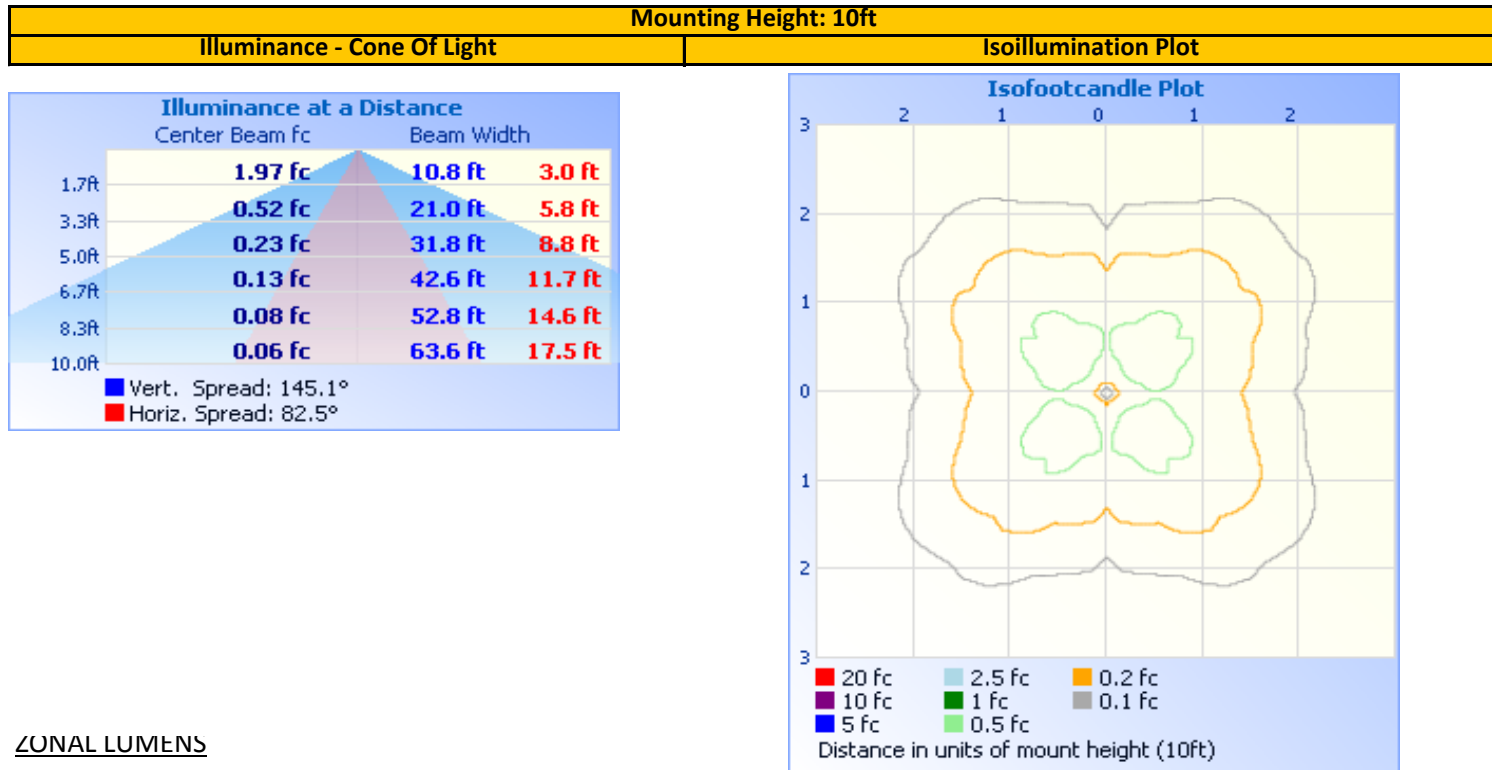
Angle	0	25	45	65	90
0	6	6	6	6	6
5	11	16	16	15	16
10	26	34	34	31	30
15	38	50	53	46	43
20	47	66	70	61	54
25	56	82	88	75	65
30	66	96	104	89	74
35	75	109	120	104	82
40	81	121	135	118	90
45	83	136	151	129	96
50	85	149	164	140	100
55	91	154	178	152	101
60	95	158	192	162	102
65	94	167	202	167	105
70	91	174	209	172	107
75	94	176	217	180	105
80	99	176	224	185	102
85	98	178	230	186	103
90	95	180	231	187	104
95	98	178	230	186	103
100	99	176	224	185	102
105	94	176	217	180	105
110	91	174	209	172	107
115	94	167	202	167	105
120	95	158	192	162	102
125	91	154	178	152	101
130	85	149	164	140	100
135	83	136	151	129	96
140	81	121	135	118	90
145	75	109	120	104	82
150	66	96	104	89	74
155	56	82	88	75	65
160	47	66	70	61	54
165	38	50	53	46	43
170	26	34	34	31	30
175	11	16	16	15	16
180	6	6	6	6	6

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	52.2	3.0%	0-10	2.1	0.1%
0-40	117.6	6.7%	10-20	14.1	0.8%
0-60	346.3	19.8%	20-30	36.1	2.1%
60-90	528.2	30.2%	30-40	65.4	3.7%
70-100	560.5	32.0%	40-50	98.3	5.6%
90-120	528.2	30.2%	50-60	130.4	7.5%
0-90	874.5	50.0%	60-70	158.3	9.1%
90-180	874.4	50.0%	70-80	179.3	10.3%
0-180	1,748.9	100.0%	80-90	190.6	10.9%
			90-100	190.6	10.9%
			100-110	179.3	10.3%
			110-120	158.3	9.1%
			120-130	130.4	7.5%
			130-140	98.2	5.6%
			140-150	65.4	3.7%
			150-160	36.1	2.1%
			160-170	14.0	0.8%
			170-180	2.1	0.1%

**INTEGRATING SPHERE TESTING**

**REPORT NO. 104349704CHI-062**

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700TDKNW42B-LED930	NA

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

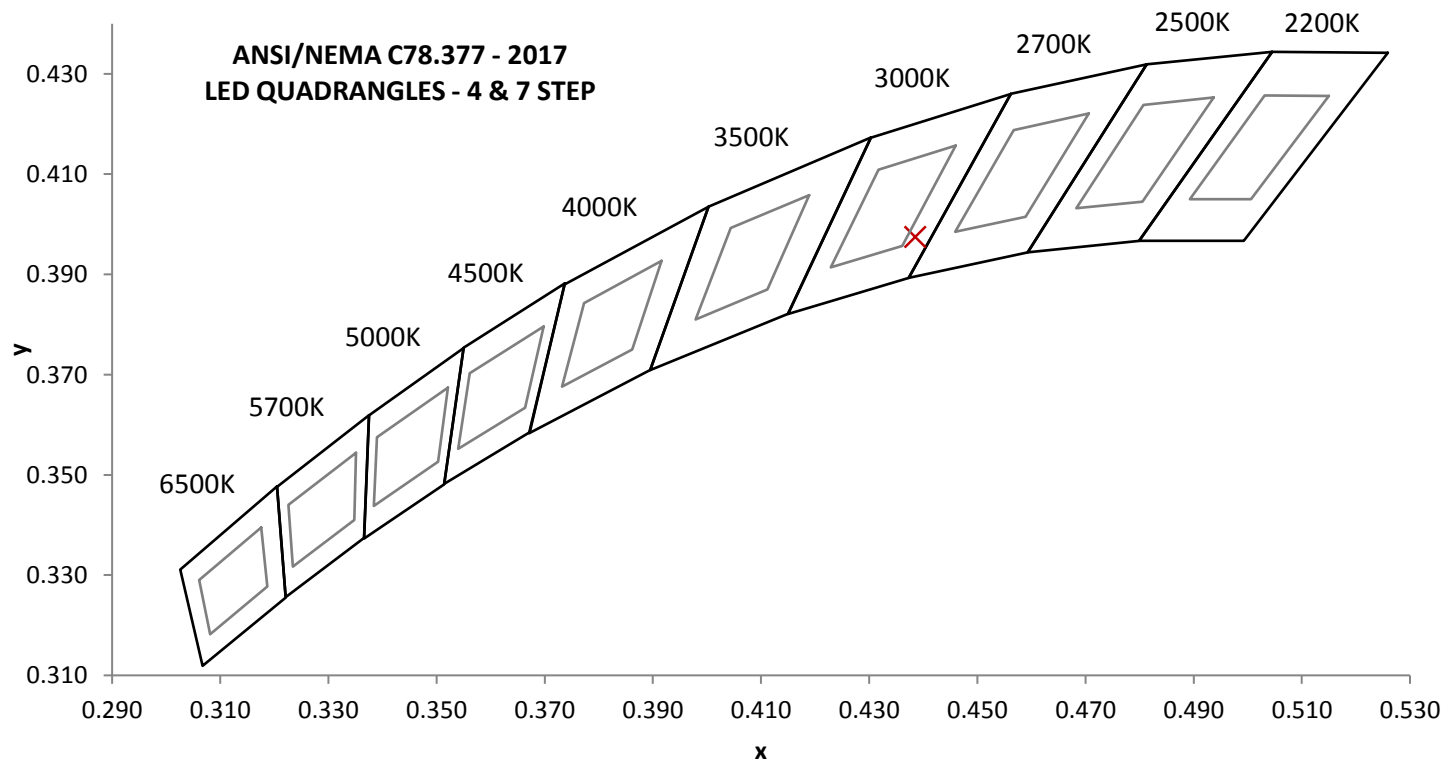
Base Orientation
Horizontal

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (l)	Input ATHD (%)
120.00	585.2	69.36	0.988	8.14
277.01	282.0	59.41	0.888	18.51

**Measured at 120(Vac)**

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (l)	CRI - R9 (l)
1789.4	25.8	2919	94.6	76.1

Duv (l)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0029	0.439	0.397	0.254	0.519

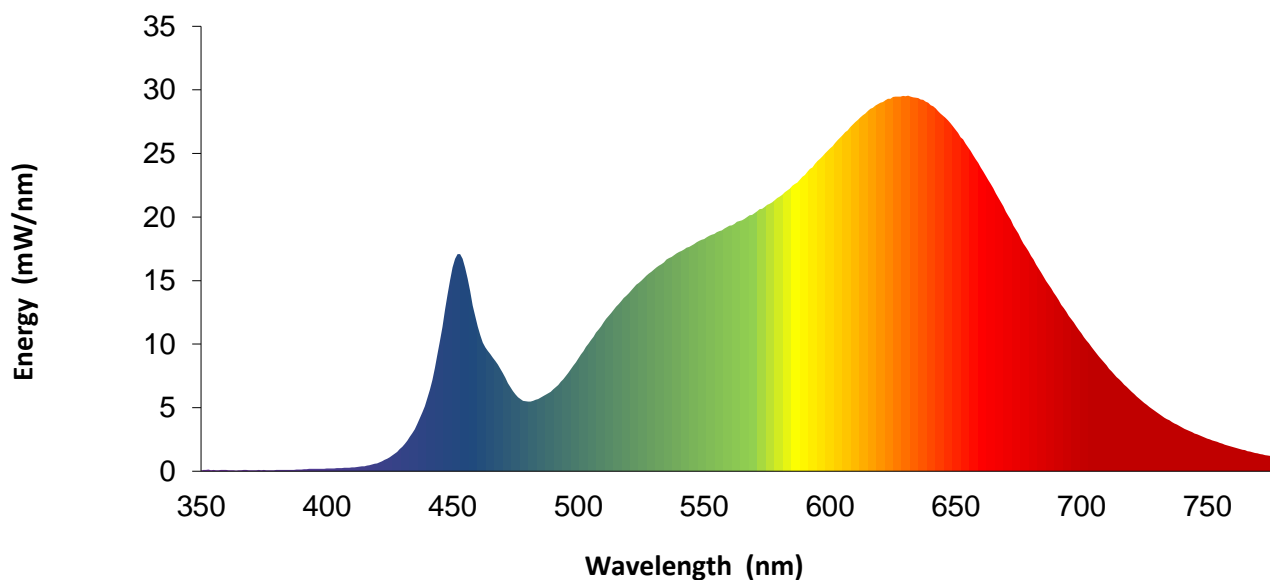


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	11.4		570	20.3		680	16.9
355	0.1		465	9.2		575	21.0		685	15.3
360	0.1		470	7.7		580	21.6		690	13.8
365	0.1		475	6.1		585	22.4		695	12.2
370	0.1		480	5.5		590	23.3		700	10.9
375	0.1		485	5.8		595	24.4		705	9.5
380	0.1		490	6.4		600	25.4		710	8.3
385	0.1		495	7.5		605	26.4		715	7.2
390	0.1		500	8.9		610	27.5		720	6.2
395	0.2		505	10.3		615	28.3		725	5.4
400	0.2		510	11.7		620	29.0		730	4.6
405	0.2		515	12.9		625	29.4		735	4.0
410	0.3		520	14.0		630	29.5		740	3.4
415	0.4		525	15.0		635	29.3		745	3.0
420	0.6		530	15.9		640	28.8		750	2.6
425	1.1		535	16.6		645	28.0		755	2.2
430	1.9		540	17.2		650	26.9		760	1.9
435	3.3		545	17.7		655	25.5		765	1.7
440	5.8		550	18.3		660	23.9		770	1.4
445	10.3		555	18.8		665	22.2		775	1.2
450	16.0		560	19.3		670	20.4		780	1.0
455	16.0		565	19.7		675	18.7		---	---

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

REPORT NO. 104349704CHI-062

#	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	VBU	VBU
4	Newport Thermohygrometer	iServer	146958	9/30/2020	9/30/2021
5	Pacific AC Power Supply	118-ACX	CHI0153	VBU	VBU
6	Sorenson DC Power Supply	XHR 150-7	146922	VBU	VBU
8	Newport Humidity Recorder	iServer	146961	9/3/2020	9/3/2021
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	4/6/2020	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	700TDKNW42B-LED930	NA

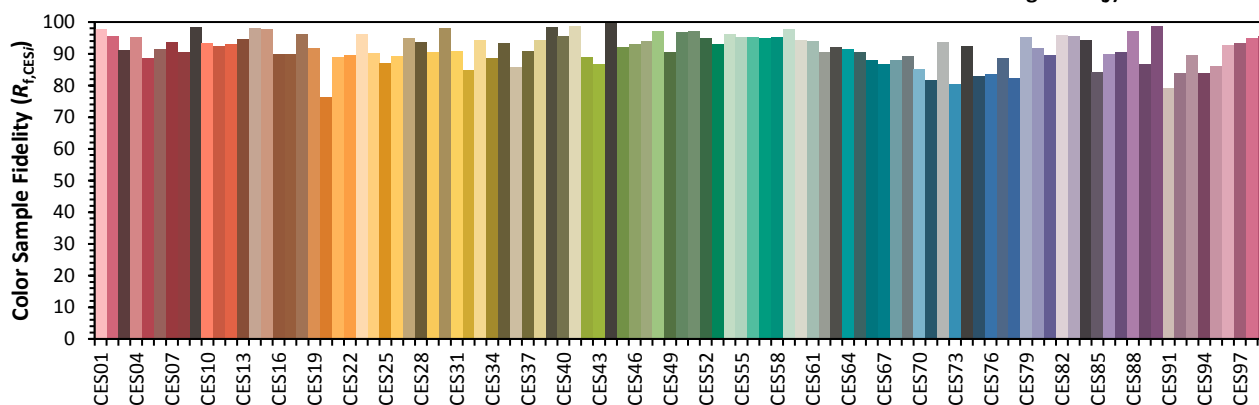
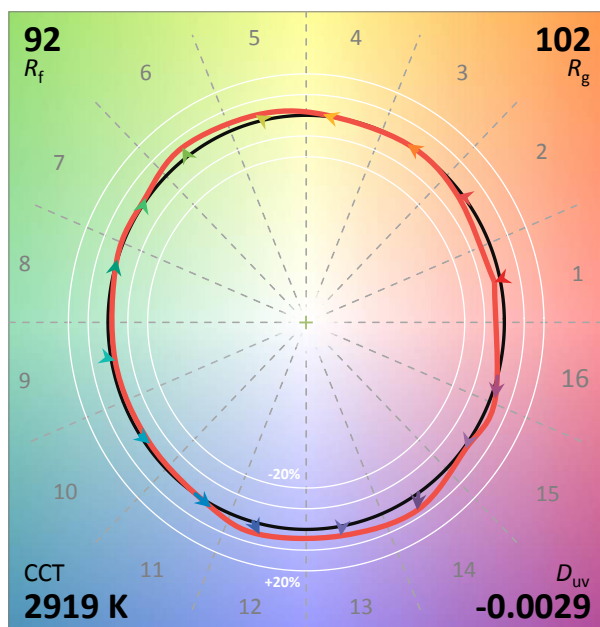
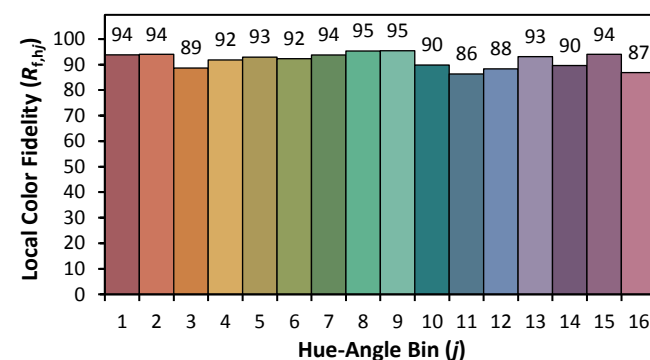
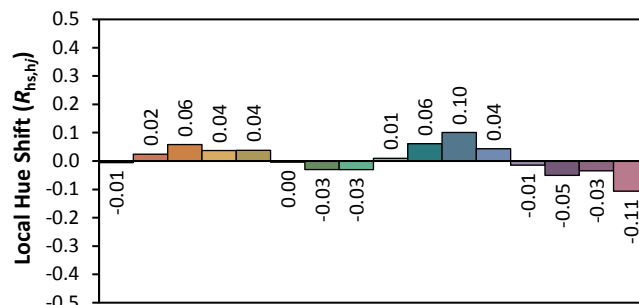
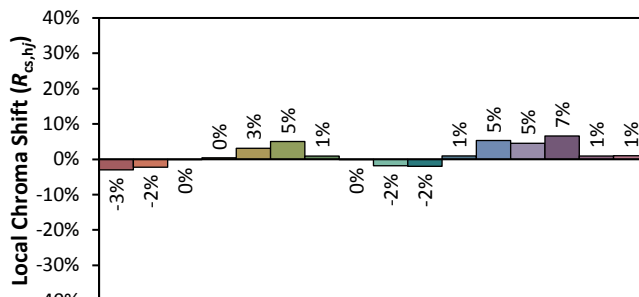
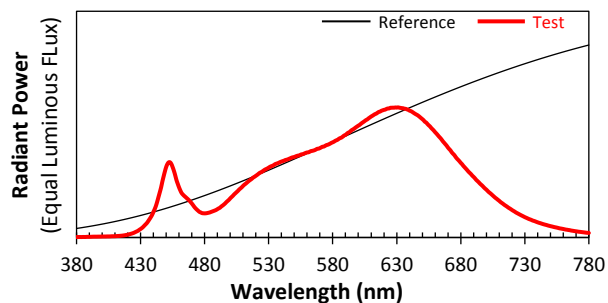
## ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: VISUAL COMFORT AND CO.

Date: 1/17/2021

Model: 700TDKNW42B-LED930



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

 $x$  0.4385 $y$  0.3974 $u'$  0.2545 $v'$  0.5190