

VISUAL COMFORT AND COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

700TDKAI2BR-LED930

PROJECT NUMBER

G104941221

REPORT NUMBER

104941221CHI-009

ISSUE DATE

3/7/2022

REVISED DATE

None

TEST DATES

2022-03-03 through 2022-03-07.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

© 2017 INTERTEK



REPORT NUMBER

104941221CHI-009

MODEL NUMBER(s)

700TDKAI2BR-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-01236637-1.

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

In Charge of Testing:



Maximilian Carvajal
Engineer
Lighting Division

Reviewer:



Jeff Davis
N.A. Technical Lead
Lighting Division

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

SAMPLE INFORMATION

REPORT NO. 104941221CHI-009

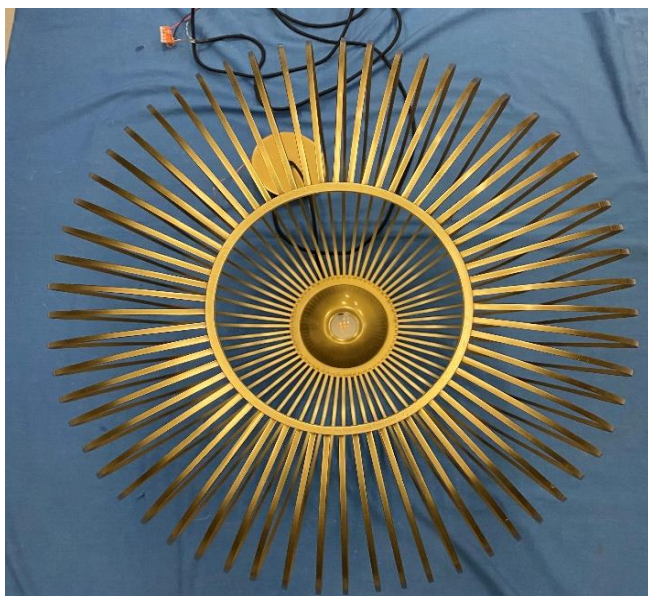
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH03012022084300	700TDKAI2BR-LED930	Kai 2 Pendant	Production	3/1/2022

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	700TDKAI2BR-LED930	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

REPORT NO. 104941221CHI-009

PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700TDKAI2BR-LED930
Product Description:	Kai 2 Pendant
LED Model No.:	BXRE-30G1000-C-82
Driver Model No.:	DA12W300C2742-3001
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	780.6	749.3
Input Power (W) @ 120VAC (Vac)	11.51	11.43
Lumen Efficacy (lm/W)	67.8	65.5
Input Power Factor (PF) @ 120VAC (Vac)	0.983	0.996

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	7.05
Correlated Color Temperature (K)	2915
Color Rendering Index - Ra (I)	91.7
Color Rendering Index - R9 (I)	70.1
Duv (I)	0.0003
Chromaticity Coordinate (x)	0.444
Chromaticity Coordinate (y)	0.407
Chromaticity Coordinate (u')	0.254
Chromaticity Coordinate (v')	0.523

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

REPORT NO. 104941221CHI-009

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700TDKAI2BR-LED930	NA

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

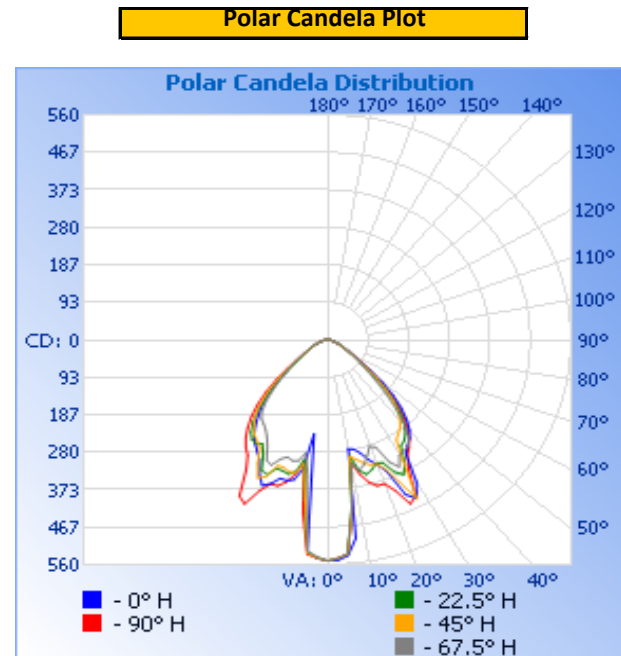
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.12	97.4	11.51	0.983

Light Output (lm)	Lumen Efficacy (lm/W)
780.6	67.8

INTENSITY SUMMARY - CANDELA

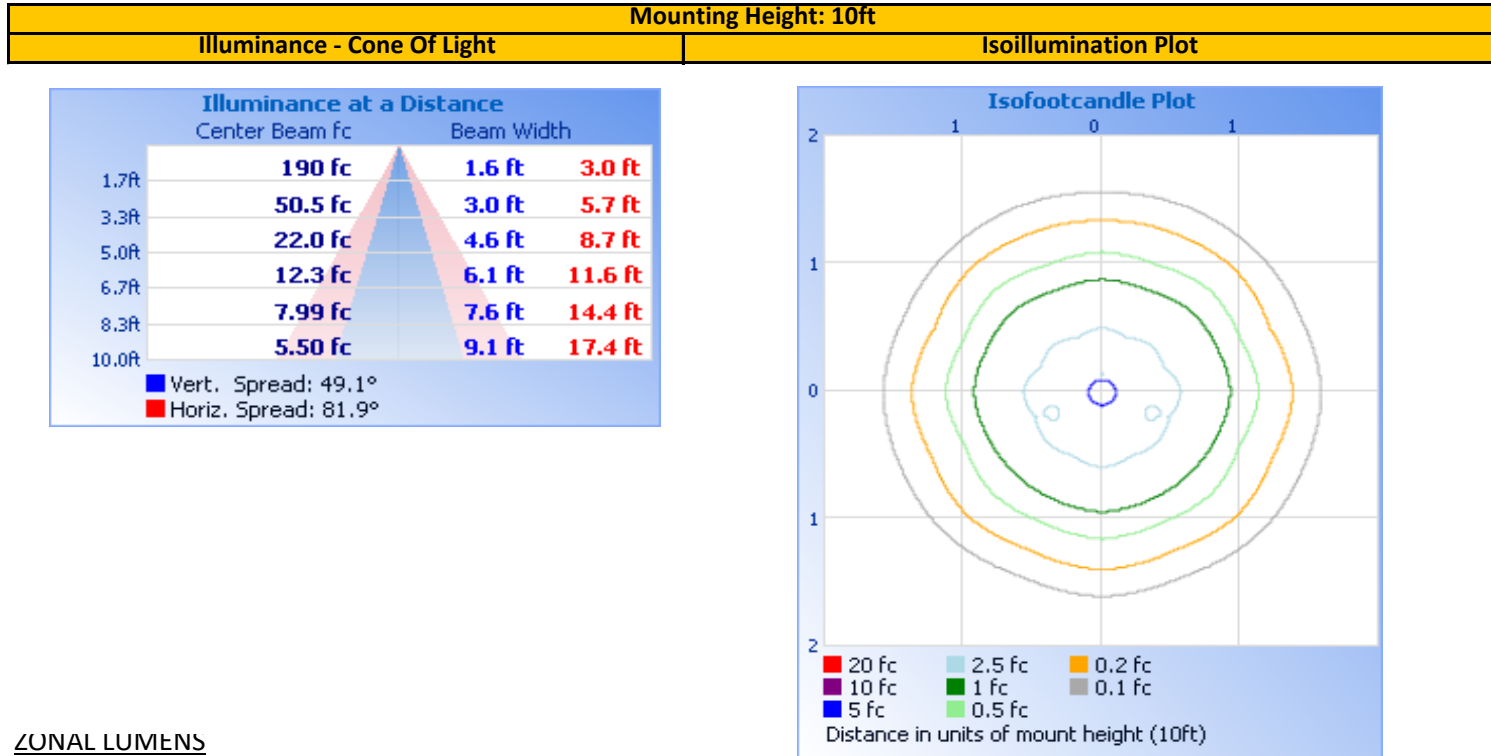
Angle	0	22.5	45	67.5	90
0	550.2	550.2	550.2	550.2	550.2
5	539.4	534.1	535.5	535.4	535.4
10	275.6	292.8	295.0	313.4	310.3
15	291.9	346.4	316.6	322.2	366.9
20	329.4	327.1	328.6	282.5	381.4
25	425.2	362.4	390.0	335.7	450.4
30	408.6	354.9	346.1	330.8	373.5
35	320.5	306.9	283.9	323.1	327.0
40	293.4	274.4	258.7	274.6	285.7
45	240.2	216.2	213.2	192.1	227.1
50	163.9	136.7	147.8	119.9	152.2
55	93.7	79.7	87.9	79.3	87.4
60	55.5	51.0	53.6	52.5	52.3
65	35.9	34.7	35.2	35.0	34.9
70	24.2	24.1	24.1	24.0	24.0
75	16.5	16.3	16.0	16.3	16.2
80	10.5	10.6	10.4	10.4	10.2
85	7.0	6.4	6.5	6.2	6.4
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



REPORT NO. 104941221CHI-009

ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
---------------------	--	--	--	--	--

Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	300.6	38.5%	0-10	41.2	5.3%
0-40	487.3	62.4%	10-20	93.4	12.0%
0-60	720.7	92.3%	20-30	166.0	21.3%
60-90	59.9	7.7%	30-40	186.7	23.9%
70-100	24.1	3.1%	40-50	156.6	20.1%
90-120	0.0	0.0%	50-60	76.9	9.8%
0-90	780.6	100.0%	60-70	35.8	4.6%
90-180	0.0	0.0%	70-80	17.5	2.2%
0-180	780.6	100.0%	80-90	6.6	0.8%
			90-100	0.0	0.0%
			100-110	0.0	0.0%
			110-120	0.0	0.0%
			120-130	0.0	0.0%
			130-140	0.0	0.0%
			140-150	0.0	0.0%
			150-160	0.0	0.0%
			160-170	0.0	0.0%
			170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

REPORT NO. 104941221CHI-009

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700TDKAI2BR-LED930	NA

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

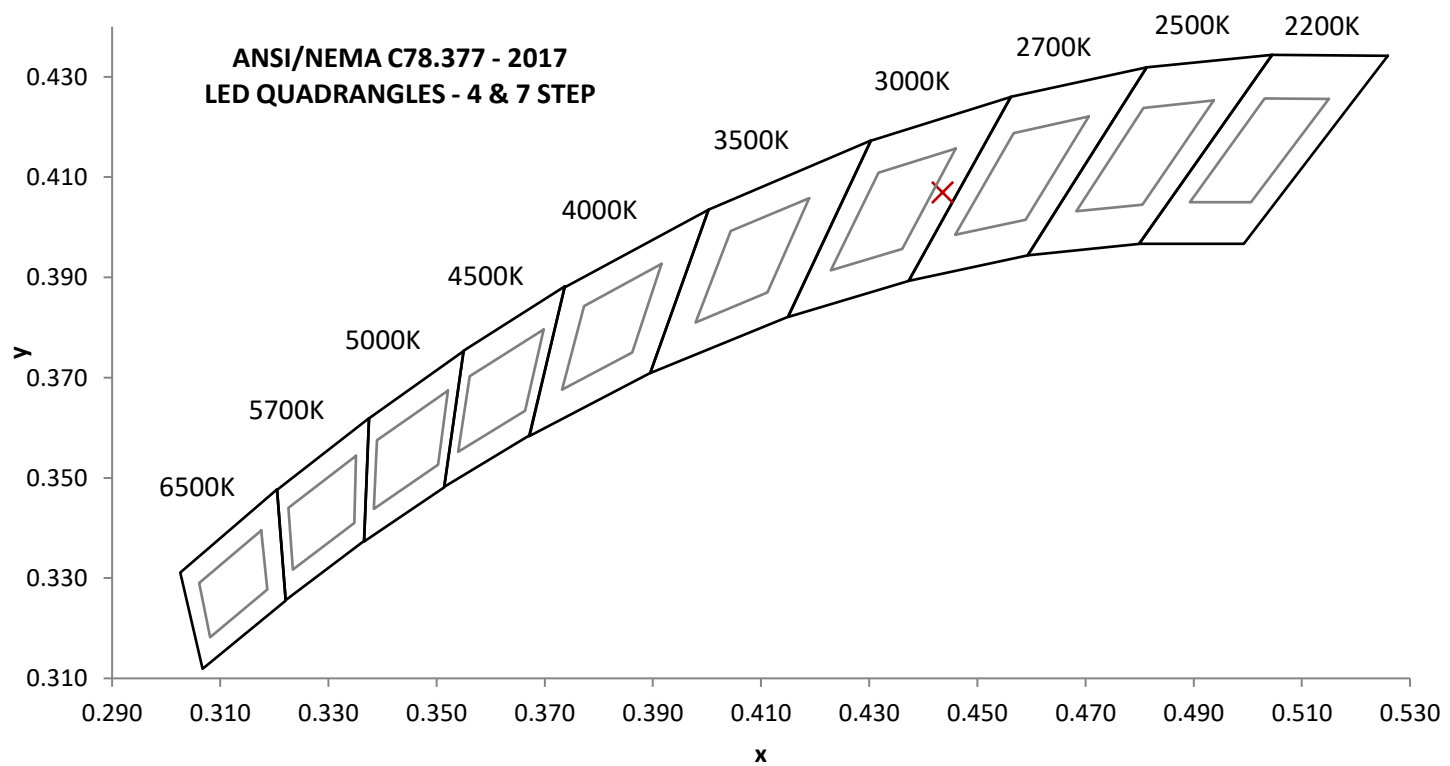
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (l)	Input ATHD (%)
120.06	95.6	11.43	0.996	7.05

Measured at 120.06(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (l)	CRI - R9 (l)
749.3	65.5	2915	91.7	70.1

Duv (l)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0003	0.444	0.407	0.254	0.523

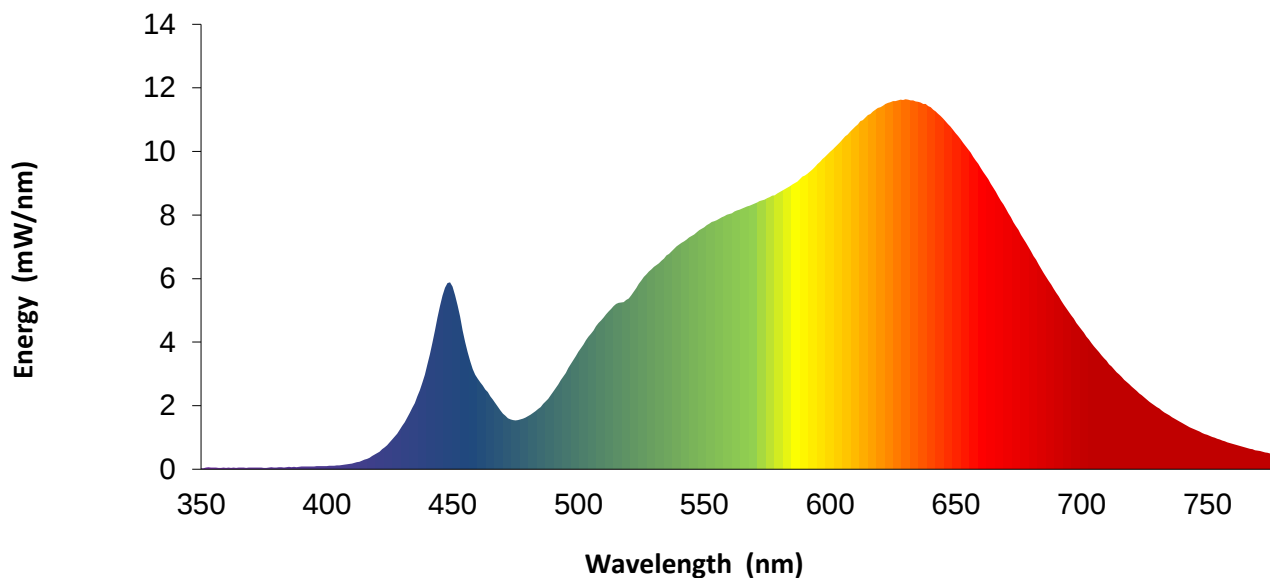


REPORT NO. 104941221CHI-009

SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.0		460	2.8		570	8.4		680	6.9
355	0.1		465	2.3		575	8.5		685	6.2
360	0.0		470	1.8		580	8.7		690	5.5
365	0.1		475	1.5		585	9.0		695	5.0
370	0.1		480	1.7		590	9.2		700	4.4
375	0.0		485	2.0		595	9.6		705	3.9
380	0.0		490	2.4		600	10.0		710	3.4
385	0.1		495	3.0		605	10.4		715	3.0
390	0.1		500	3.7		610	10.8		720	2.6
395	0.1		505	4.3		615	11.1		725	2.3
400	0.1		510	4.8		620	11.4		730	2.0
405	0.1		515	5.2		625	11.6		735	1.7
410	0.2		520	5.4		630	11.6		740	1.5
415	0.3		525	5.9		635	11.6		745	1.3
420	0.5		530	6.4		640	11.4		750	1.1
425	0.8		535	6.7		645	11.0		755	0.9
430	1.4		540	7.1		650	10.6		760	0.8
435	2.1		545	7.3		655	10.1		765	0.7
440	3.3		550	7.6		660	9.5		770	0.6
445	5.1		555	7.8		665	8.9		775	0.5
450	5.7		560	8.0		670	8.2		780	0.4
455	4.0		565	8.2		675	7.5		---	---

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

REPORT NO. 104941221CHI-009

#	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	---	---	---
---	---	---	---	---
---	---	---	---	---

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700TDKAI2BR-LED930	NA

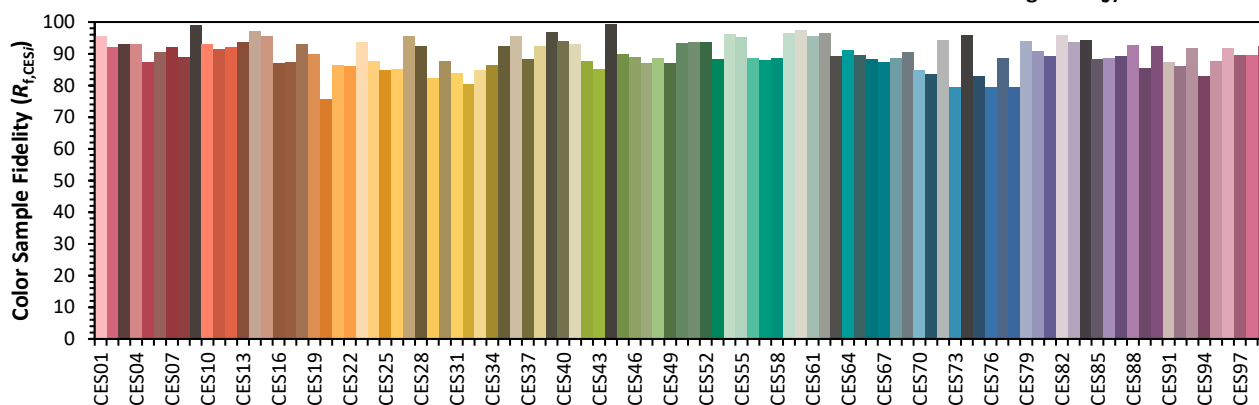
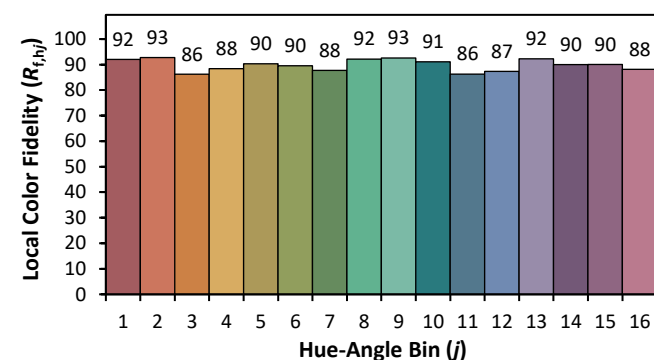
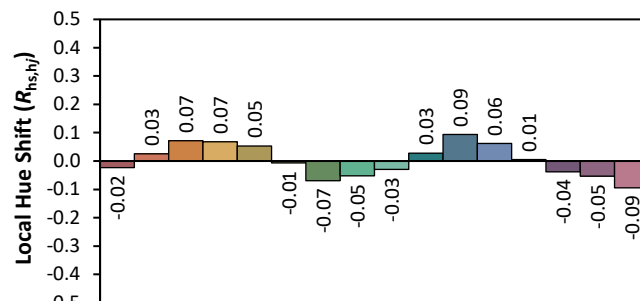
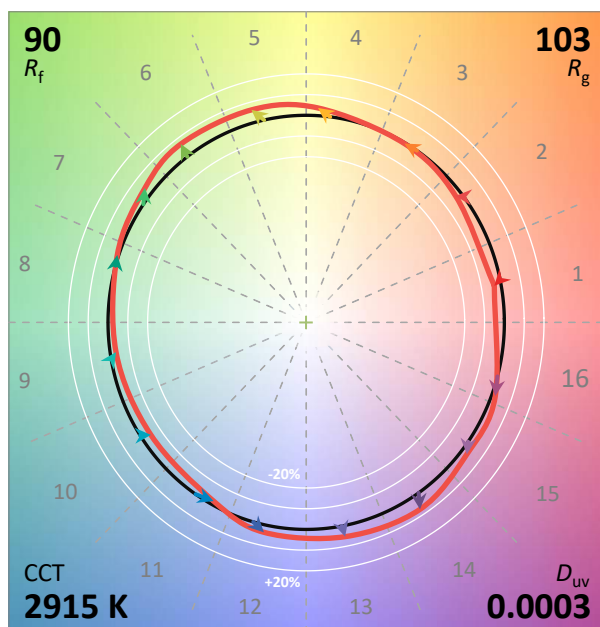
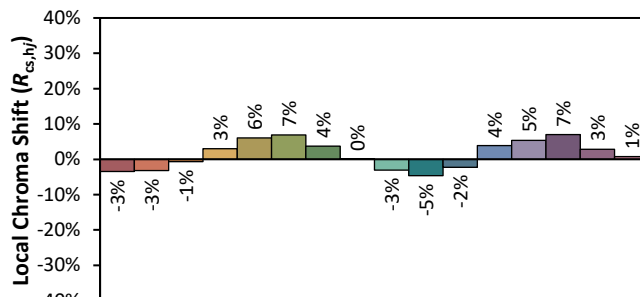
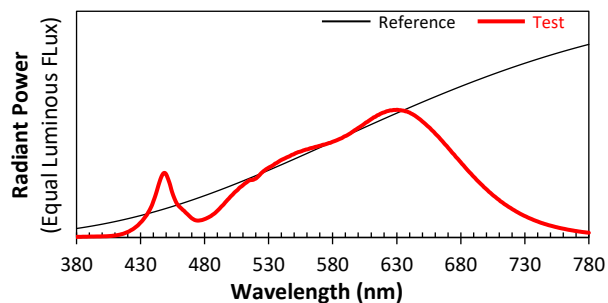
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: VISUAL COMFORT AND COMPANY

Date: 3/3/2022

Model: 700TDKAI2BR-LED930



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

 x 0.4435 y 0.4069 u' 0.2536 v' 0.5235