

VISUAL COMFORT AND COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

700TDBAU18B-LED930

PROJECT NUMBER

G104349704

REPORT NUMBER

104349704CHI-061

ISSUE DATE

1/15/2021

REVISED DATE

None

TEST DATES

01/05/1900 through 01/15/2021.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104349704CHI-061

MODEL NUMBER

700TDBAU18B-LED930

REPORT RENDERED TO:

VISUAL COMFORT AND COMPANY
7400 LINDER AVE
SKOKIE, IL 60077
COUNTRY

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
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SAMPLE INFORMATION

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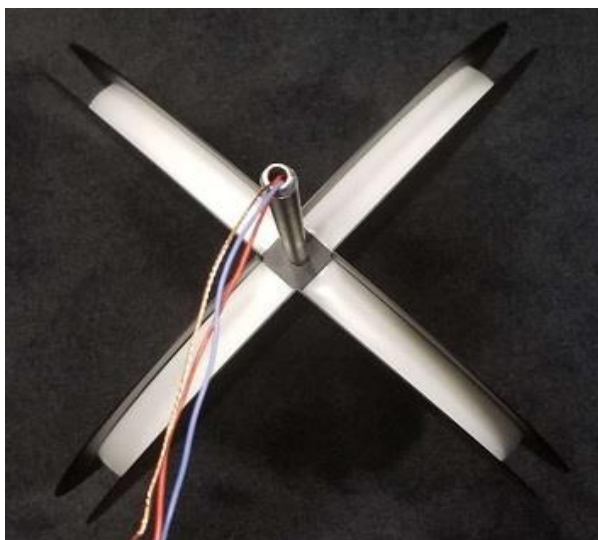
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH01072021112227-003	700TDBAU18B-LED930	BAU 18 PENDANT	Production	1/7/2021

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	700TDBAU18B-LED930	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700TDBAU18B-LED930
Product Description:	BAU 18 PENDANT
LED Model No.:	DILUX WW-FLS102T23WW240B-24
Driver Model No.:	MACRON GBLD001
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	660.5	685.6
Input Power (W) @ 120VAC (Vac)	41.86	42.05
Lumen Efficacy (lm/W)	15.8	16.3
Input Power Factor () @ 120VAC (Vac)	0.979	0.978

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	10.21
Correlated Color Temperature (K)	2864
Color Rendering Index - Ra ()	93.0
Color Rendering Index - R9 ()	70.5
Duv ()	0.0001
Chromaticity Coordinate (x)	0.447
Chromaticity Coordinate (y)	0.408
Chromaticity Coordinate (u')	0.256
Chromaticity Coordinate (v')	0.524
Input Power (W) @ 277 (Vac)	42.36
Input Power Factor () @ 277 (Vac)	0.709
Input ATHD (%) @ 277 (Vac)	53.59

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	700TDBAU18B-LED930	NA

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

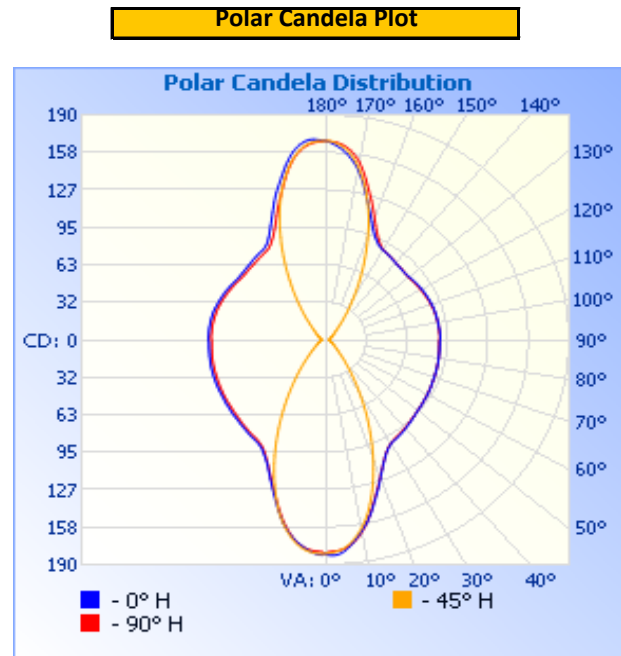
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Horizontal	120.1	356.2	41.86	0.979

Light Output (lm)	Lumen Efficacy (lm/W)
660.5	15.8

INTENSITY SUMMARY - CANDELA

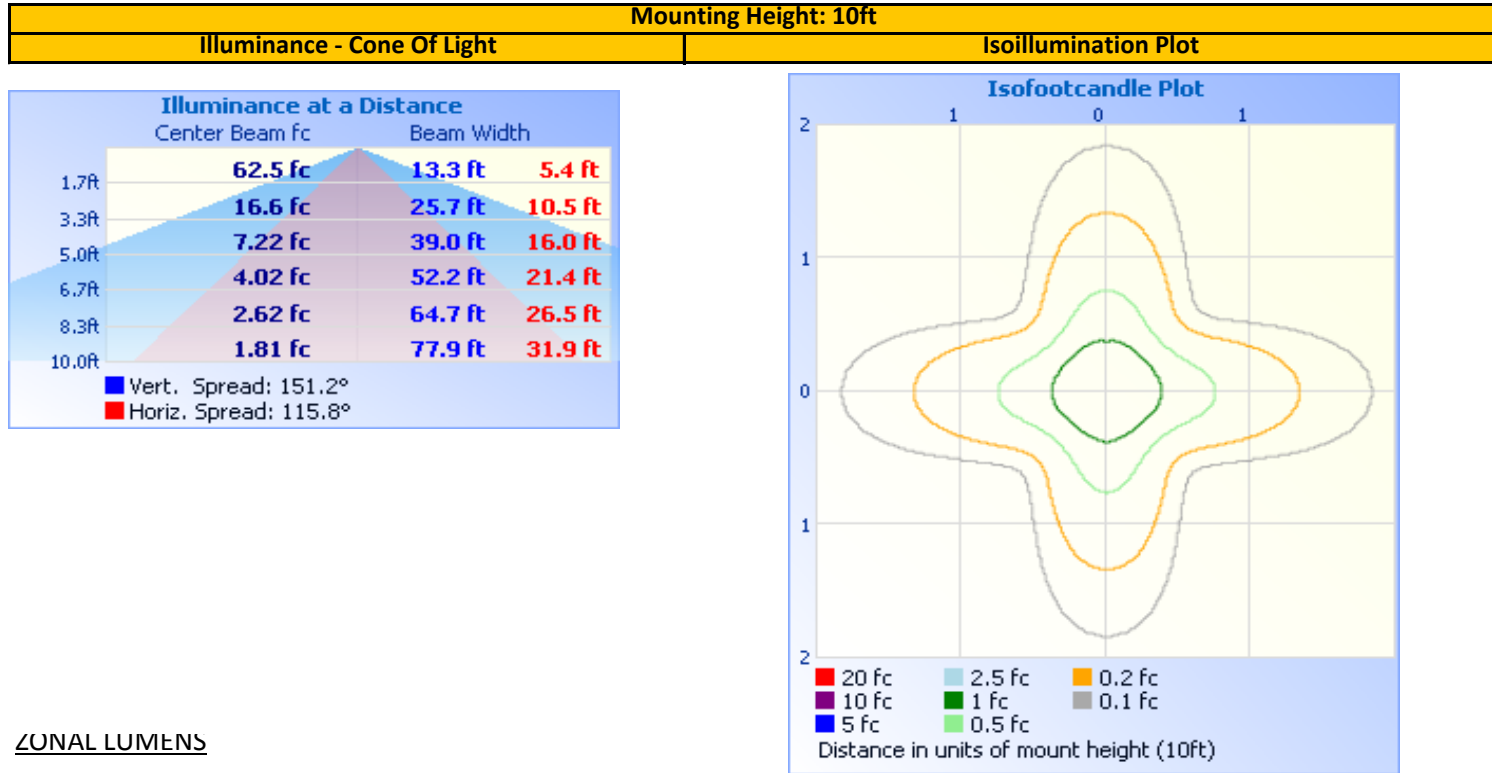
Angle	0	25	45	65	90
0	180	180	180	180	180
5	179	176	176	176	177
10	164	161	162	163	164
15	145	138	138	142	144
20	125	113	109	117	124
25	110	91	80	94	110
30	102	74	55	76	101
35	99	62	36	64	98
40	97	52	23	54	97
45	95	43	15	44	95
50	94	35	11	36	94
55	93	28	8	29	92
60	92	23	7	24	92
65	91	20	6	20	91
70	90	17	5	17	90
75	90	16	4	15	90
80	90	15	4	14	90
85	89	14	3	13	89
90	89	14	3	13	89
95	89	15	3	12	89
100	89	16	4	13	89
105	89	17	4	14	88
110	88	20	4	15	88
115	87	23	5	17	86
120	86	27	6	20	85
125	85	32	7	24	84
130	84	38	9	29	84
135	84	45	13	35	84
140	85	53	19	42	85
145	87	60	31	49	87
150	88	70	48	61	90
155	94	84	71	79	96
160	106	103	98	102	111
165	124	126	125	127	131
170	146	147	148	149	152
175	160	162	163	164	165
180	168	168	168	168	168

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	101.3	15.3%	0-10	16.5	2.5%
0-40	145.2	22.0%	10-20	39.7	6.0%
0-60	227.9	34.5%	20-30	45.1	6.8%
60-90	114.8	17.4%	30-40	43.9	6.7%
70-100	114.0	17.3%	40-50	42.4	6.4%
90-120	113.2	17.1%	50-60	40.2	6.1%
0-90	342.7	51.9%	60-70	38.7	5.9%
90-180	317.8	48.1%	70-80	38.2	5.8%
0-180	660.5	100.0%	80-90	37.9	5.7%
			90-100	37.9	5.7%
			100-110	37.8	5.7%
			110-120	37.5	5.7%
			120-130	37.4	5.7%
			130-140	37.9	5.7%
			140-150	38.4	5.8%
			150-160	39.6	6.0%
			160-170	35.9	5.4%
			170-180	15.2	2.3%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700TDBAU18B-LED930	NA

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

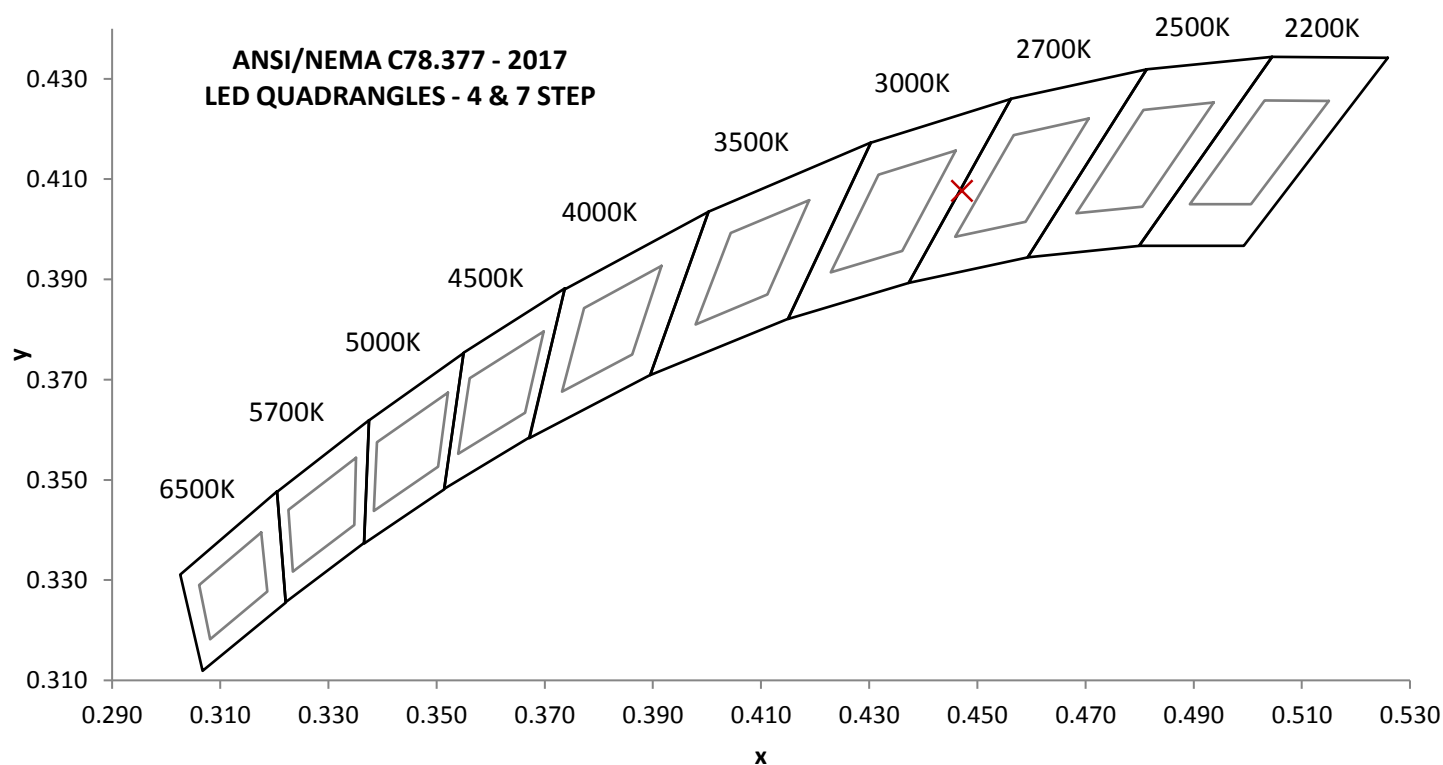
Base Orientation
Horizontal

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)	Input ATHD (%)
119.98	358.6	42.05	0.978	10.21
277.02	215.8	42.36	0.709	53.59

Measured at 119.98(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (I)	CRI - R9 (I)
685.6	16.3	2864	93.0	70.5

Duv (I)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0001	0.447	0.408	0.256	0.524

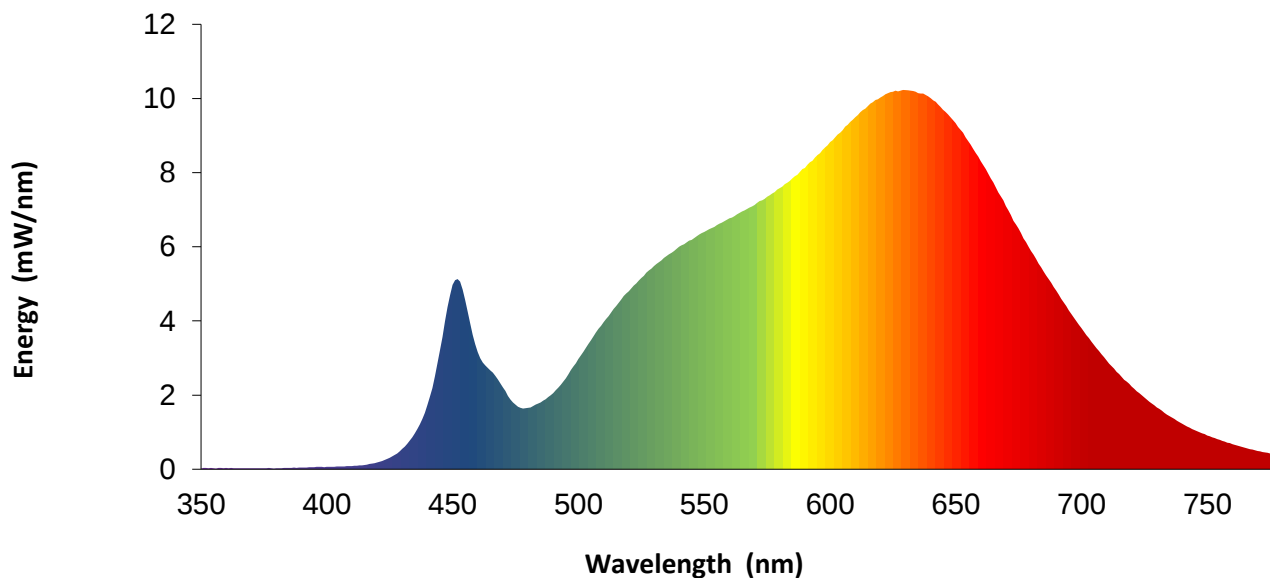


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.0		460	3.2		570	7.1		680	5.9
355	0.0		465	2.7		575	7.3		685	5.3
360	0.0		470	2.2		580	7.6		690	4.8
365	0.0		475	1.7		585	7.8		695	4.3
370	0.0		480	1.7		590	8.1		700	3.8
375	0.0		485	1.8		595	8.5		705	3.4
380	0.0		490	2.1		600	8.8		710	2.9
385	0.0		495	2.5		605	9.1		715	2.6
390	0.0		500	3.0		610	9.5		720	2.2
395	0.1		505	3.5		615	9.8		725	1.9
400	0.1		510	4.0		620	10.0		730	1.7
405	0.1		515	4.4		625	10.2		735	1.4
410	0.1		520	4.8		630	10.2		740	1.2
415	0.1		525	5.2		635	10.1		745	1.1
420	0.2		530	5.5		640	10.0		750	0.9
425	0.3		535	5.8		645	9.7		755	0.8
430	0.5		540	6.0		650	9.3		760	0.7
435	1.0		545	6.2		655	8.9		765	0.6
440	1.7		550	6.4		660	8.3		770	0.5
445	3.2		555	6.6		665	7.7		775	0.4
450	5.0		560	6.8		670	7.1		780	0.4
455	4.6		565	6.9		675	6.5		---	---

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	VBUE	VBUE
4	Newport Thermohygrometer	iServer	146958	9/30/2020	9/30/2021
5	Pacific AC Power Supply	118-ACX	CHI0153	VBUE	VBUE
6	Sorenson DC Power Supply	XHR 150-7	146922	VBUE	VBUE
8	Newport Humidity Recorder	iServer	146961	9/3/2020	9/3/2021
9	Labsphere Spectroradiometer	CDS2600	CHI0539	VBUE	VBUE
10	3 Meter Sphere	SPR600	CHI0088	VBUE	VBUE
11	Elgar AC Power Supply	CW1251	146112	VBUE	VBUE
12	Sorenson DC Power Supply	XFR150-8	146846	VBUE	VBUE
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	700TDBAU18B-LED930	NA

ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

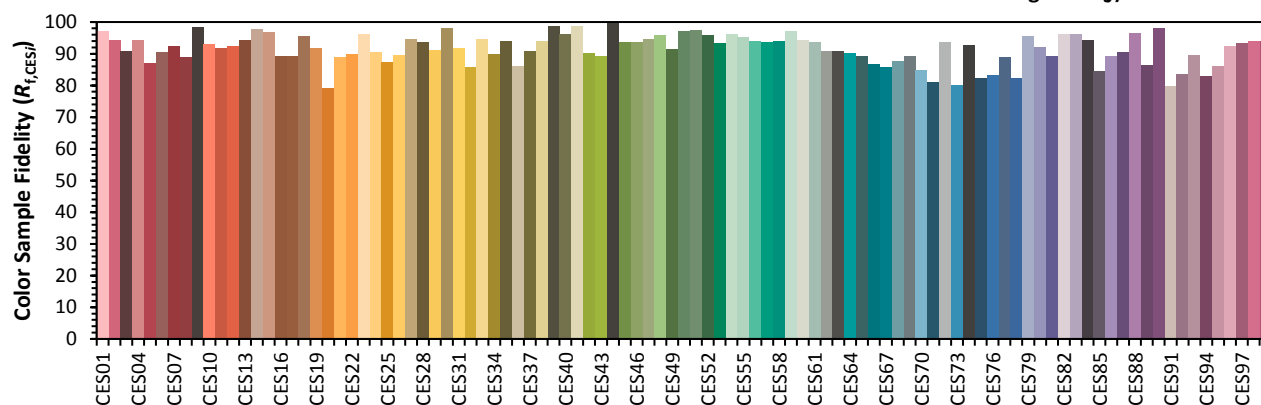
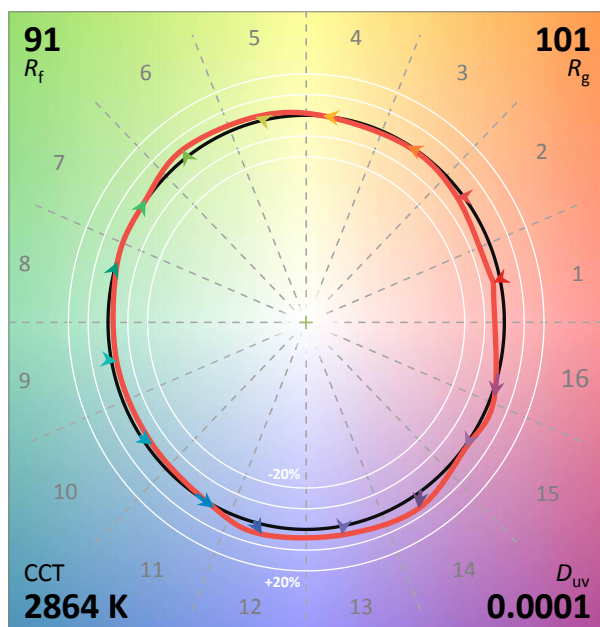
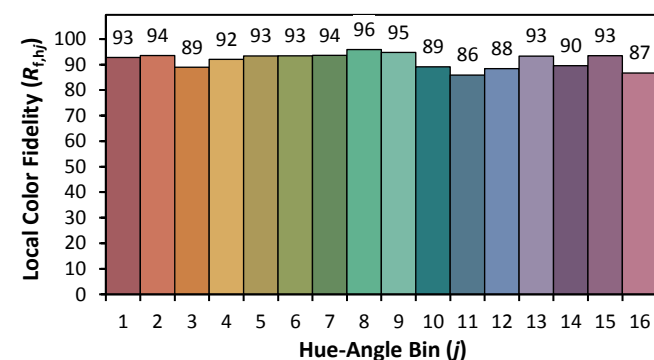
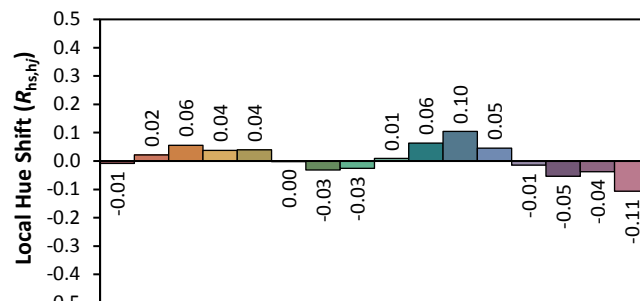
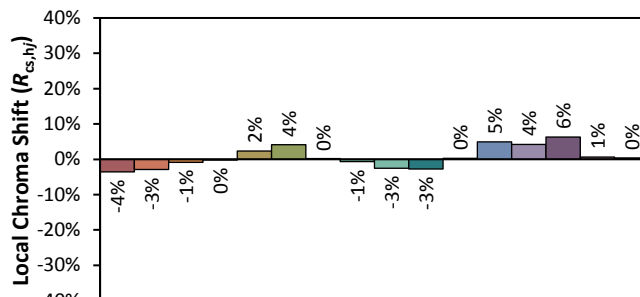
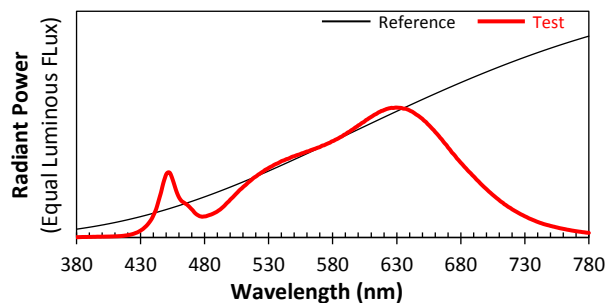
Manufacturer:

VISUAL COMFORT AND COMPANY

Date: 1/15/2021

Model:

700TDBAU18B-LED930



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

 x 0.4471 y 0.4076 u' 0.2556 v' 0.5243