

PURE EDGE LIGHTING

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

TUBS-NF-30K-BK

PROJECT NUMBER

G104430061

REPORT NUMBER

104430061CHI-002

ISSUE DATE

3/10/2021

REVISED DATE

None

TEST DATES

02/25/2021 through 03/03/2021.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104430061CHI-002

MODEL NUMBER(s)

TUBS-NF-30K-BK

REPORT RENDERED TO:

PURE EDGE LIGHTING
1718 WEST FULLERTON AVE
CHICAGO
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-01100816-1.

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:



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Reviewer:



Jeff Davis
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SAMPLE INFORMATION

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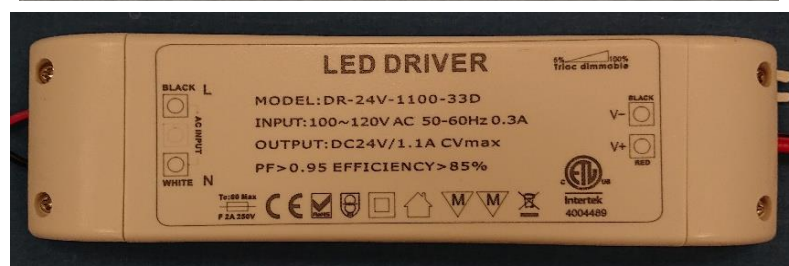
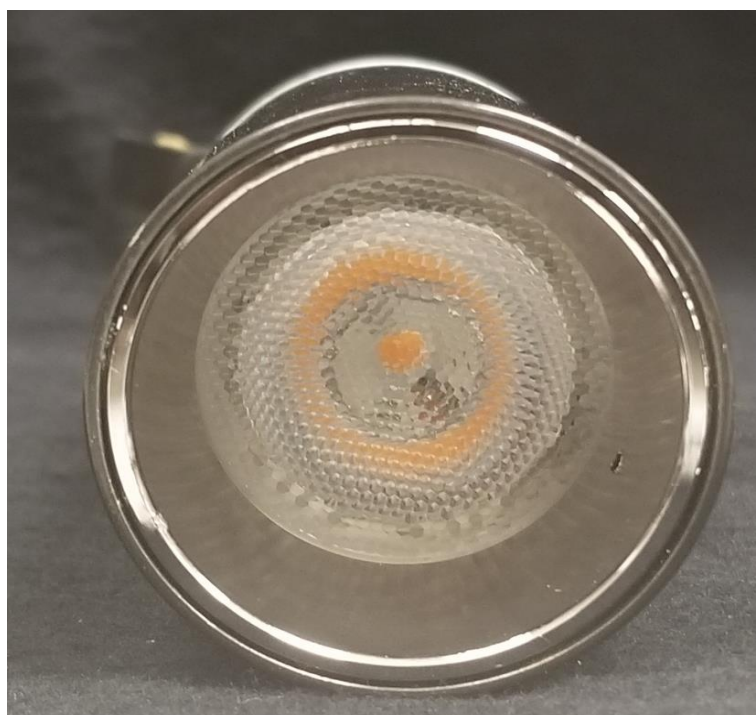
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH02182021102128	TUBS-NF-30K-BK	LED ACCENT LIGHT	Prototype	2/18/2021

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	TUBS-NF-30K-BK	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	TUBS-NF-30K-BK
Product Description:	LED ACCENT LIGHT
LED Model No.:	LUMINUS/CXM-4-30-90-36-AC40-F5-3
Driver Model No.:	HUARI/DR-24V-1100-33D
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	597.0	602.0
Input Power (W) @ 120 (Vac)	11.53	11.52
Lumen Efficacy (lm/W)	51.8	52.2
Input Power Factor () @ 120 (Vac)	0.965	0.965

Criteria	Results
Input ATHD (%) @ 120 (Vac)	15.29
Correlated Color Temperature (K)	3005
Color Rendering Index - Ra ()	92.5
Color Rendering Index - R9 ()	63.2
Duv ()	0.0009
Chromaticity Coordinate (x)	0.435
Chromaticity Coordinate (y)	0.402
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.520

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	TUBS-NF-30K-BK	NA

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

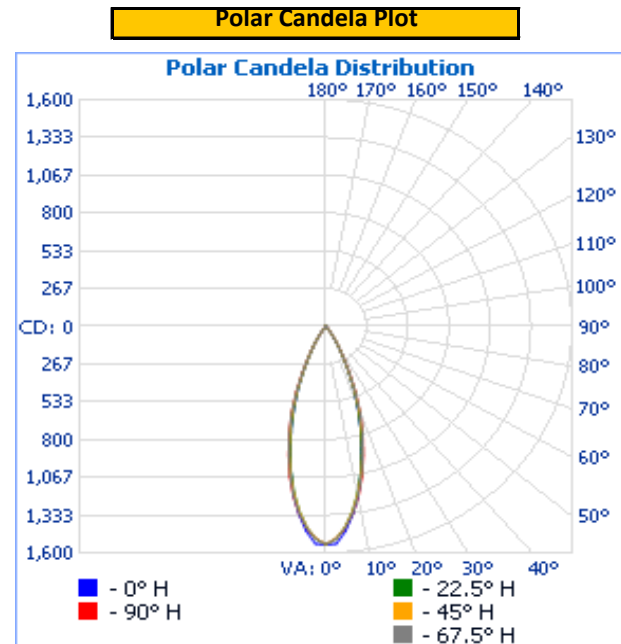
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up	120.00	99.6	11.53	0.965

Light Output (lm)	Lumen Efficacy (lm/W)
597.0	51.8

INTENSITY SUMMARY - CANDELA

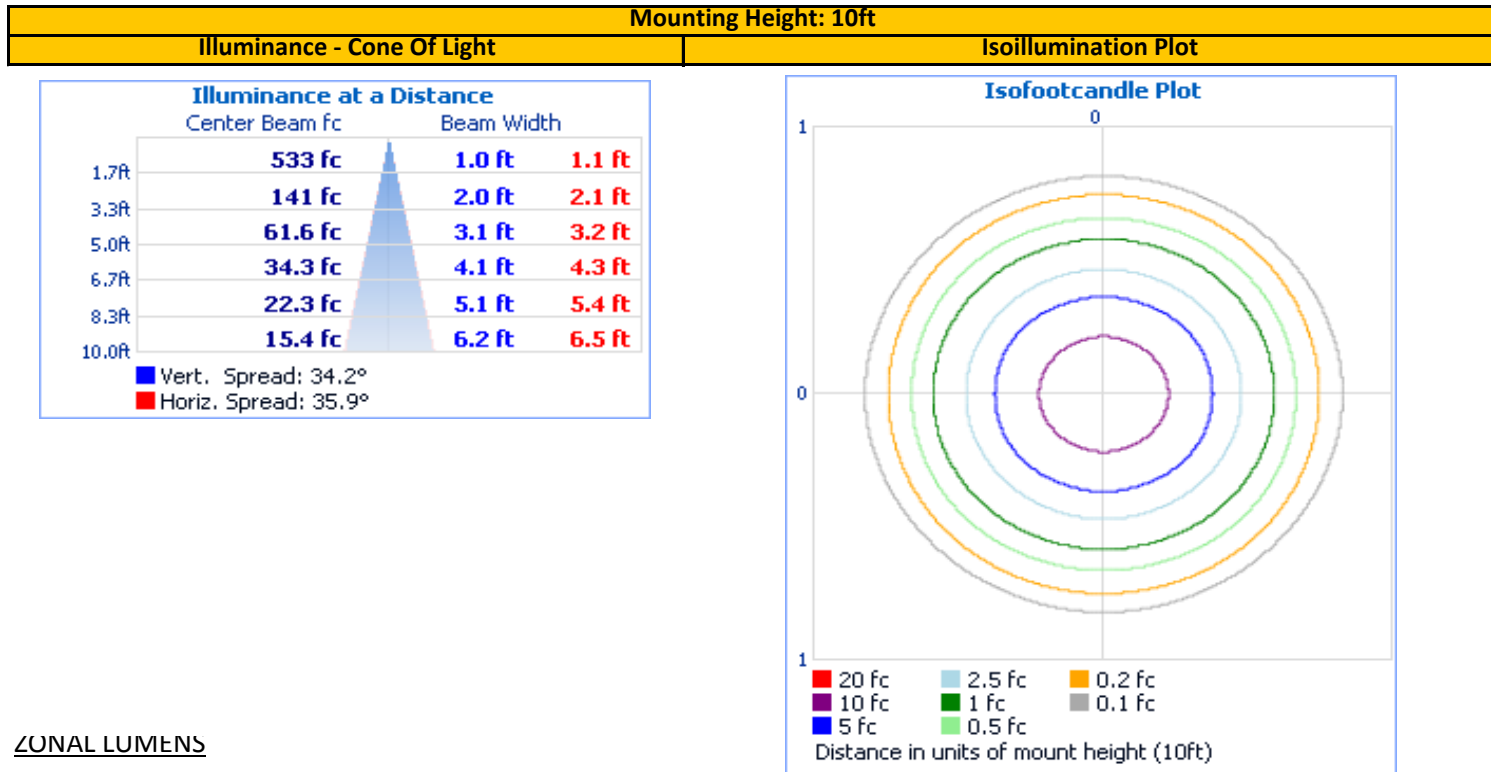
Angle	0	22.5	45	67.5	90
0	1540	1540	1540	1540	1540
5	1453	1424	1423	1429	1437
10	1209	1193	1197	1211	1218
15	891	898	918	931	940
20	603	609	633	650	650
25	342	341	348	358	362
30	160	160	165	168	169
35	62	60	61	57	54
40	18	17	17	19	20
45	7	7	7	8	9
50	4	4	5	5	5
55	2	3	3	3	3
60	1	2	2	2	2
65	0	0	0	0	0
70	0	0	0	0	0
75	0	0	0	0	0
80	0	0	0	0	0
85	0	0	0	0	0
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					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	543.1	91.0%	0-10	128.8	21.6%
0-40	586.7	98.3%	10-20	250.8	42.0%
0-60	596.0	99.8%	20-30	163.5	27.4%
60-90	1.0	0.2%	30-40	43.5	7.3%
70-100	0.3	0.1%	40-50	6.8	1.1%
90-120	0.0	0.0%	50-60	2.5	0.4%
0-90	597.0	100.0%	60-70	0.7	0.1%
90-180	0.0	0.0%	70-80	0.2	0.0%
0-180	597.0	100.0%	80-90	0.2	0.0%
			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. 104430061CHI-002

Test Configuration	Tested Model No.	Pass/Fail/NA
1	TUBS-NF-30K-BK	NA

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

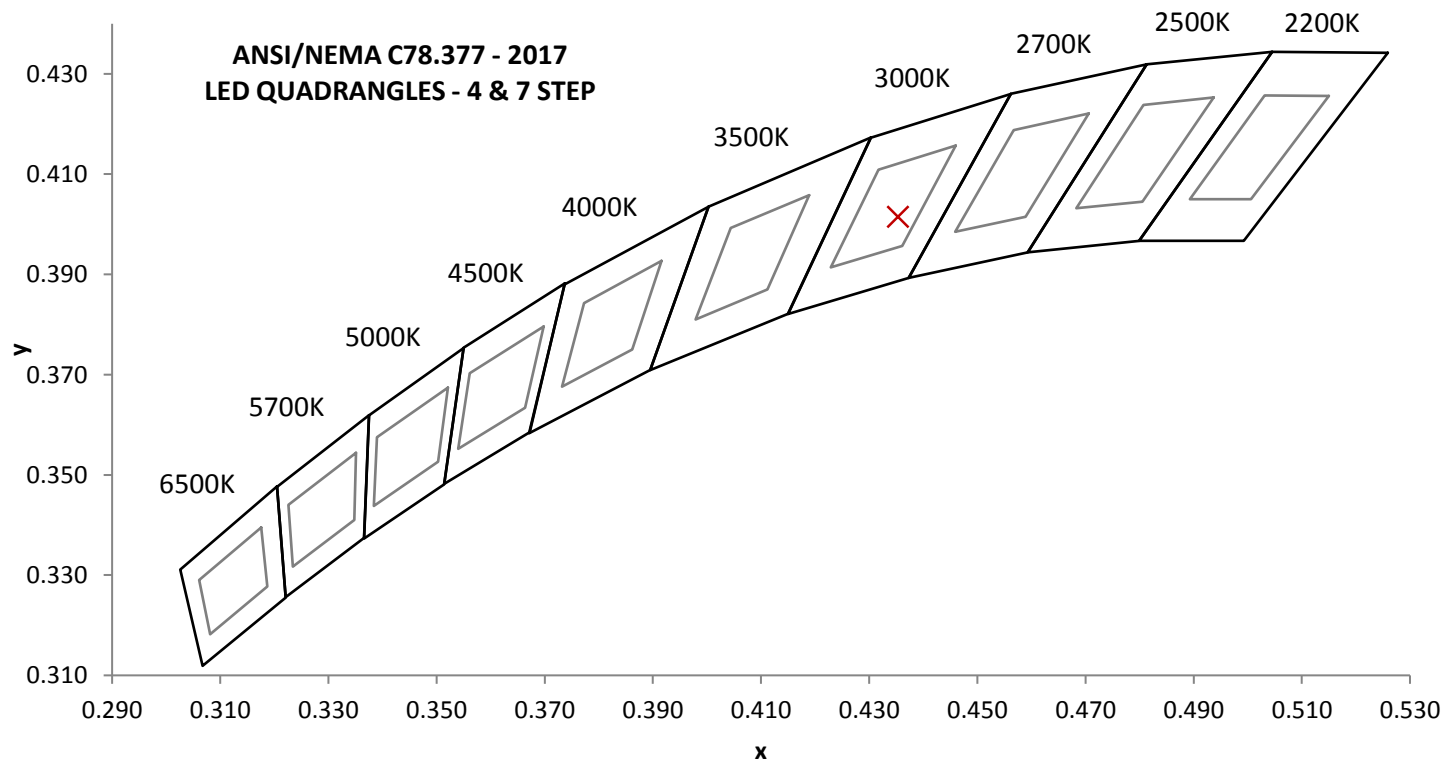
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (l)	Input ATHD (%)
119.97	99.5	11.52	0.965	15.29

Measured at 119.97(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (l)	CRI - R9 (l)
602.0	52.2	3005	92.5	63.2

Duv (l)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0009	0.435	0.402	0.251	0.520

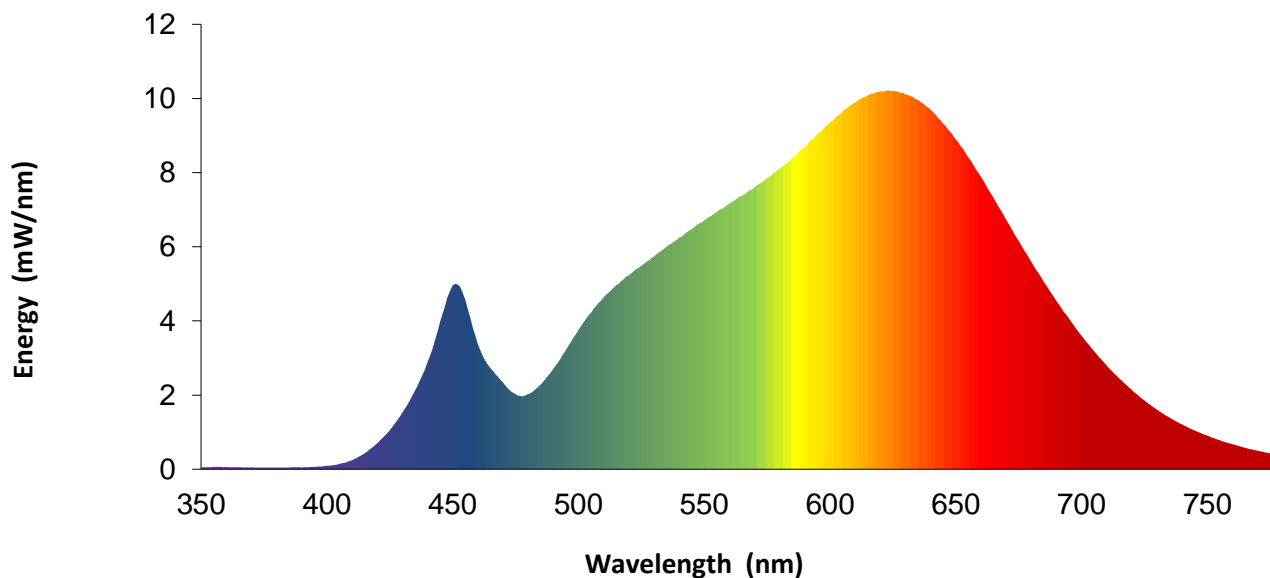


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	3.4		570	7.6		680	5.6
355	0.1		465	2.7		575	7.9		685	5.1
360	0.1		470	2.3		580	8.1		690	4.5
365	0.1		475	2.0		585	8.4		695	4.1
370	0.1		480	2.0		590	8.7		700	3.6
375	0.0		485	2.3		595	9.0		705	3.2
380	0.0		490	2.7		600	9.4		710	2.8
385	0.0		495	3.2		605	9.6		715	2.5
390	0.1		500	3.8		610	9.9		720	2.1
395	0.1		505	4.2		615	10.1		725	1.9
400	0.1		510	4.6		620	10.2		730	1.6
405	0.1		515	5.0		625	10.2		735	1.4
410	0.2		520	5.2		630	10.1		740	1.2
415	0.4		525	5.5		635	10.0		745	1.0
420	0.7		530	5.7		640	9.7		750	0.9
425	1.0		535	6.0		645	9.3		755	0.8
430	1.5		540	6.2		650	8.9		760	0.7
435	2.1		545	6.5		655	8.4		765	0.6
440	2.9		550	6.7		660	7.9		770	0.5
445	4.0		555	6.9		665	7.3		775	0.4
450	5.0		560	7.2		670	6.7		780	0.4
455	4.6		565	7.4		675	6.2		---	---

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	146957	1/29/2021	1/29/2022
5	Pacific AC Power Supply	118-ACX	CHI0153	VBUE	VBUE
6	Newport Humidity Recorder	iServer	146961	9/3/2020	9/3/2021
7	Labsphere 2M Sphere & Spectroradiometer	CDS1100	146137	VBUE	VBUE
8	Elgar AC Power Supply	CW1251	146113	VBUE	VBUE
9	Sorenson DC Power Supply	XFR150-8	146847	VBUE	VBUE
10	Yokogawa Power Meter	WT1600	146767	4/6/2020	4/6/2021
11	Omega Thermometer	MDSi8	146873	7/1/2020	7/1/2021

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	TUBS-NF-30K-BK	NA

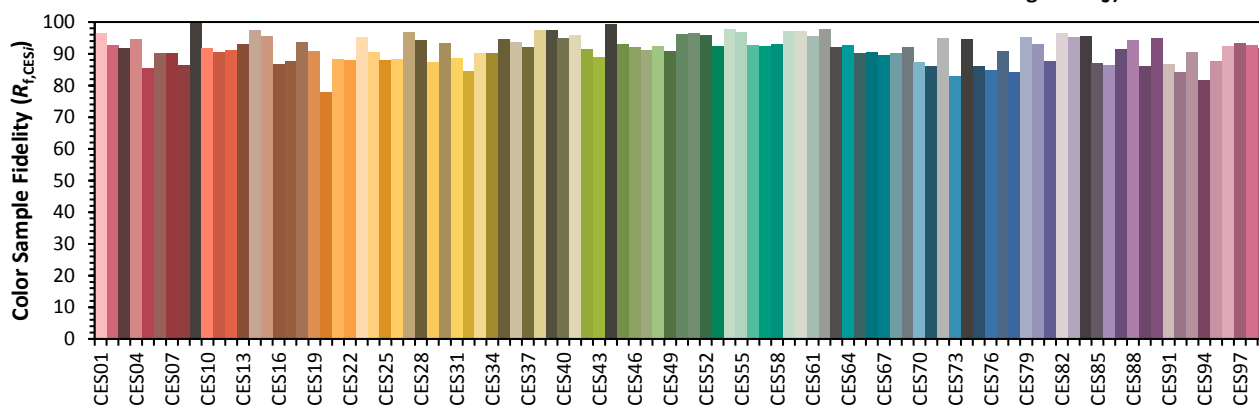
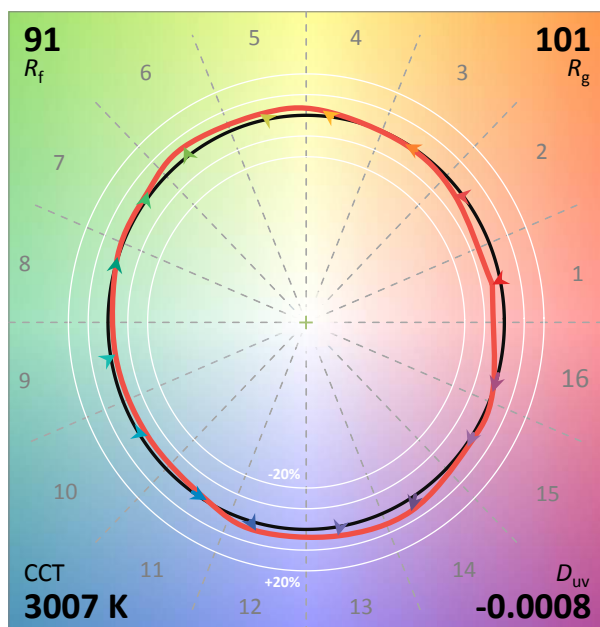
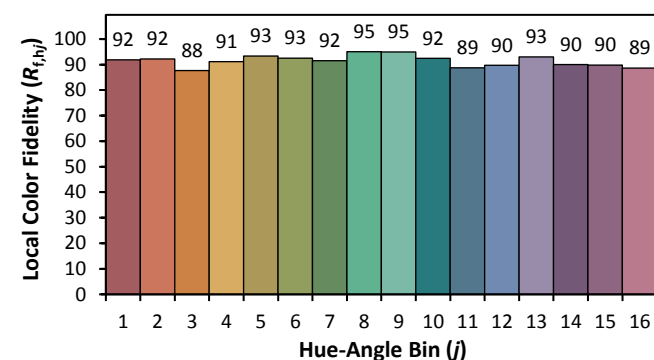
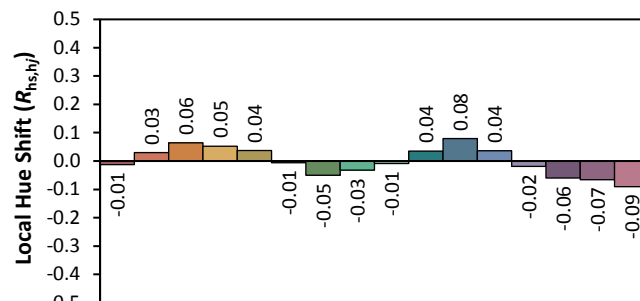
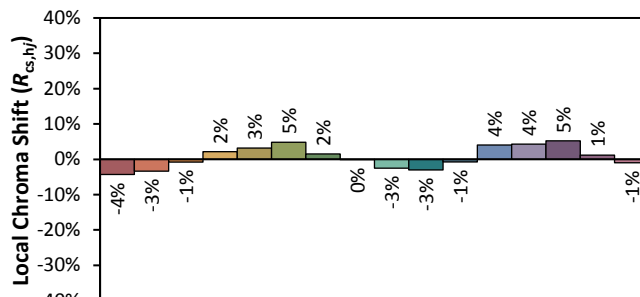
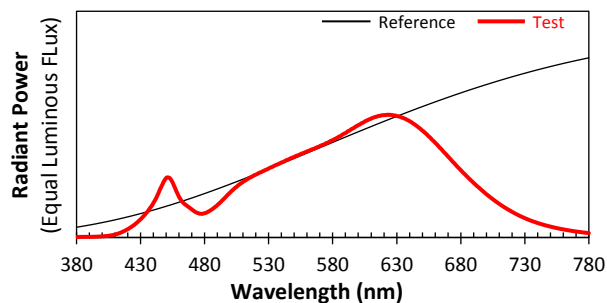
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Pure Edge Lighting

Date: 3/3/2021

Model: TUBS-NF-30K-BK



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

 x 0.4353 y 0.4015 u' 0.2506 v' 0.5201