

PHOENIX PRODUCTS LLC

TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

CF-375-VS-120-277-NW

PROJECT NUMBER

G104357589

REPORT NUMBER

104357589CHI-038

ISSUE DATE

2/19/2021

REVISED DATE

None

TEST DATES

02/03/2021 through 02/11/2021.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

© 2017 INTERTEK



REPORT NUMBER

104357589CHI-038

MODEL NUMBER(s)

CF-375-VS-120-277-NW

REPORT RENDERED TO:

PHOENIX PRODUCTS LLC
8711 W PORT AVE.
MILWAUKEE, WI, 53224
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-01080058-1.

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:



Ian Smith
Engineer
Lighting Division

Reviewer:



Jeff Davis
NA 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. 104357589CHI-038

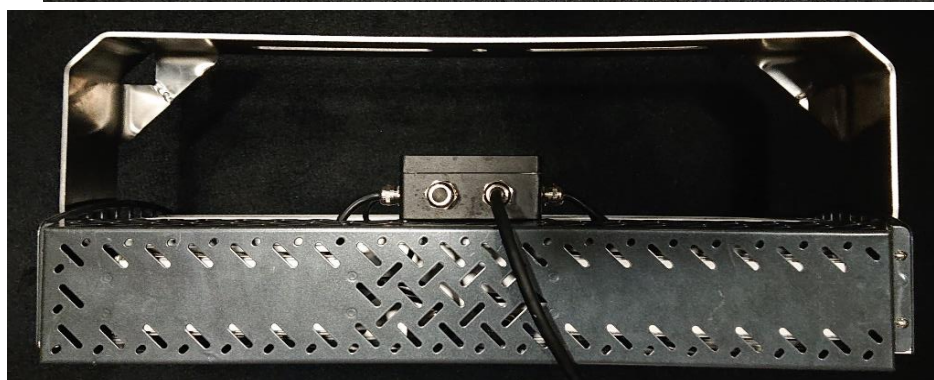
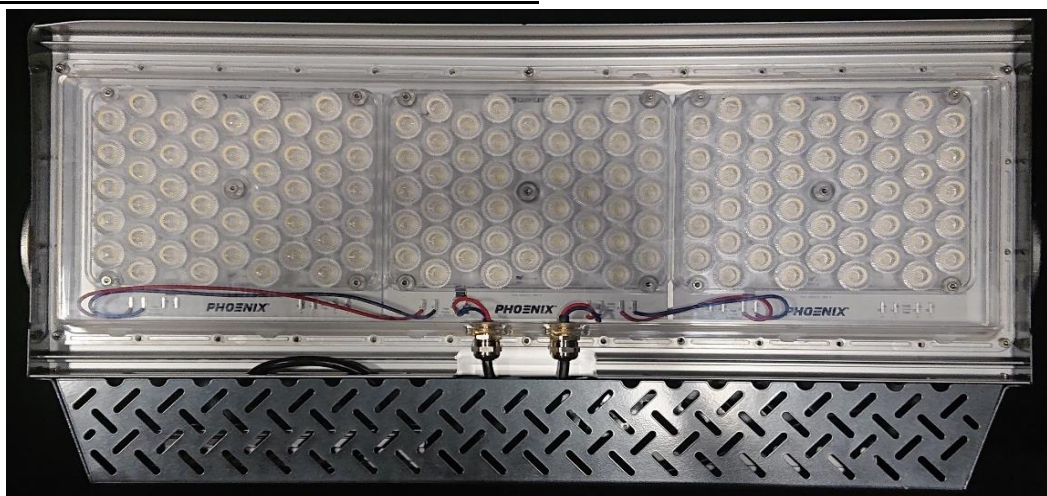
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH01272021125026	CF-375-VS-120-277-NW	Command Flood 375	Production	1/27/2021

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	CF-375-VS-120-277-NW	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

REPORT NO. 104357589CHI-038

PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	CF-375-VS-120-277-NW
Product Description:	Command Flood 375
LED Model No.:	Lumileds 5050
Driver Model No.:	Inventronics / EUM-240S350DT & EUM-150S210DT
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	49399.3	49350.9
Input Power (W) @ 120 (Vac)	355.66	356.70
Lumen Efficacy (lm/W)	138.9	138.4
Input Power Factor () @ 120 (Vac)	0.999	0.999

Criteria	Results
Input ATHD (%) @ 120 (Vac)	2.50
Correlated Color Temperature (K)	3946
Color Rendering Index - Ra ()	73.7
Color Rendering Index - R9 ()	-23.4
Duv ()	0.0024
Chromaticity Coordinate (x)	0.385
Chromaticity Coordinate (y)	0.384
Chromaticity Coordinate (u')	0.225
Chromaticity Coordinate (v')	0.506

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. 104357589CHI-038

Test Configuration	Tested Model No.	Pass/Fail/NA
1	CF-375-VS-120-277-NW	NA

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

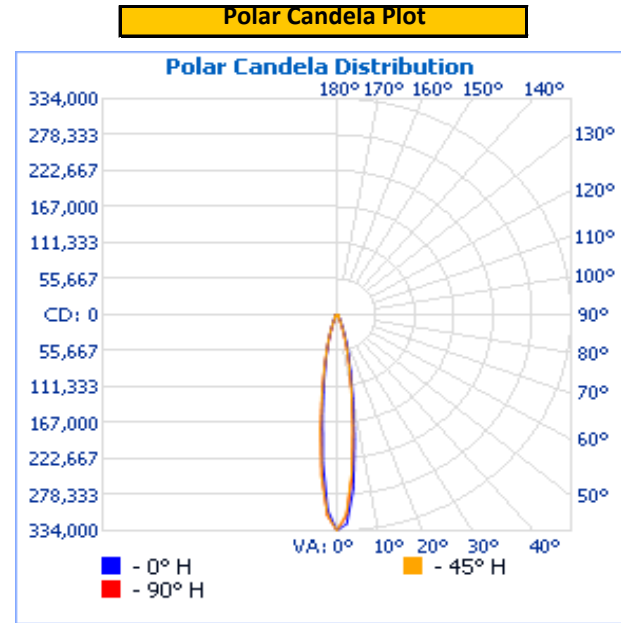
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up	120.1	2965.0	355.66	0.999

Light Output (lm)	Lumen Efficacy (lm/W)
49399.3	138.9

INTENSITY SUMMARY - CANDELA

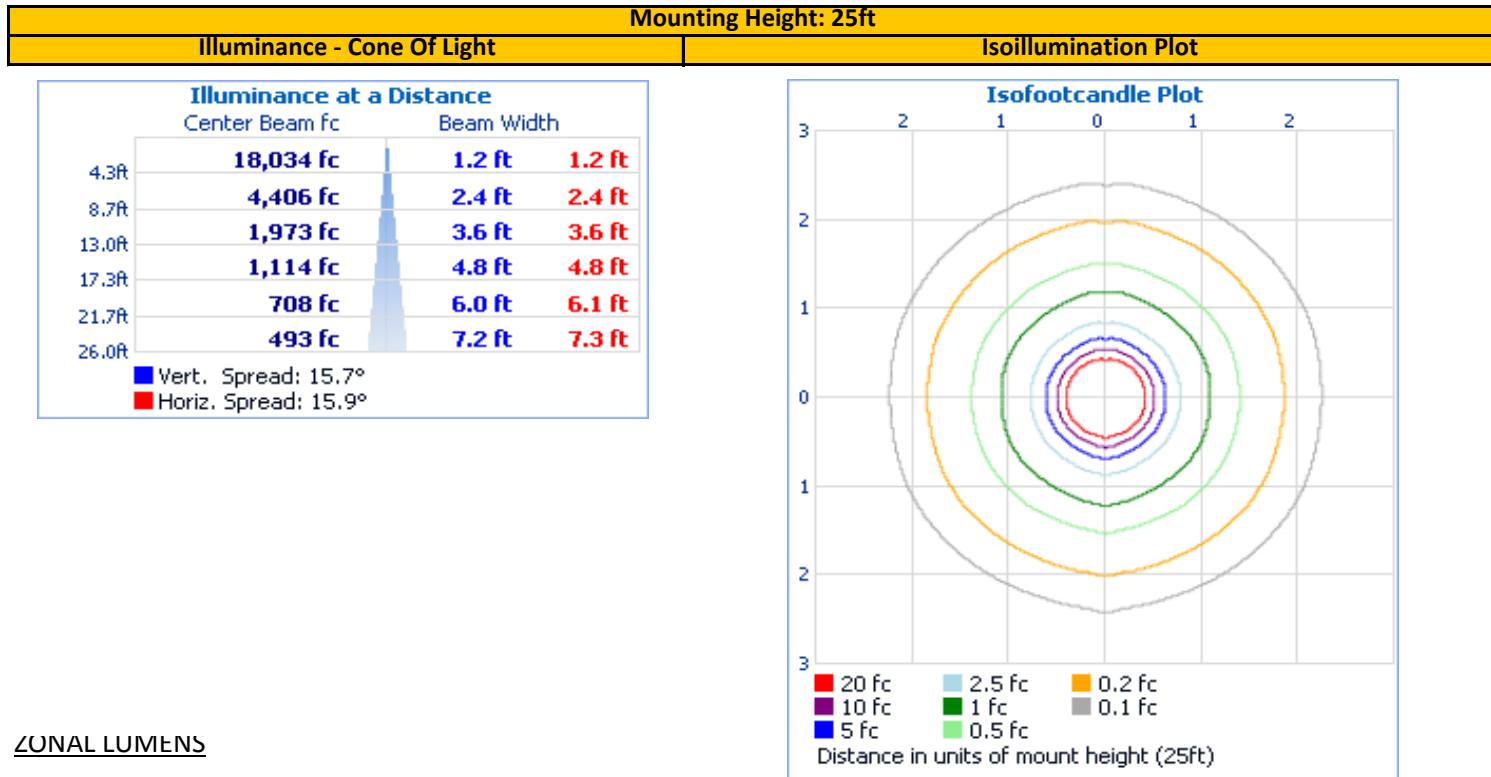
Angle	0	25	45	65	90
0	333457	333457	333457	333457	333457
5	269639	243258	243696	245474	248644
10	130513	115864	117232	119065	120512
15	63227	55287	54177	54092	54799
20	31353	26070	24997	24304	24070
25	14527	12058	11317	10775	10612
30	8824	7217	6657	6426	6374
35	5258	4282	3990	3791	3720
40	3807	3195	3040	2849	2808
45	3039	2536	2436	2324	2219
50	2454	2092	1970	1893	1810
55	2016	1746	1650	1582	1545
60	1675	1428	1384	1306	1269
65	1300	1132	1096	1048	983
70	934	806	788	750	697
75	610	518	498	491	441
80	300	250	248	251	221
85	84	70	68	78	70
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. 104357589CHI-038

ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	41,403.1	83.8%	0-10	19138.7	38.7%
0-40	44,187.2	89.4%	10-20	16254.1	32.9%
0-60	47,644.8	96.4%	20-30	6010.2	12.2%
60-90	1,754.6	3.6%	30-40	2784.2	5.6%
70-100	662.3	1.3%	40-50	1937.3	3.9%
90-120	0.0	0.0%	50-60	1520.2	3.1%
0-90	49,399.3	100.0%	60-70	1092.2	2.2%
90-180	0.0	0.0%	70-80	552.5	1.1%
0-180	49,399.3	100.0%	80-90	109.9	0.2%
			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. 104357589CHI-038

Test Configuration	Tested Model No.	Pass/Fail/NA
1	CF-375-VS-120-277-NW	NA

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

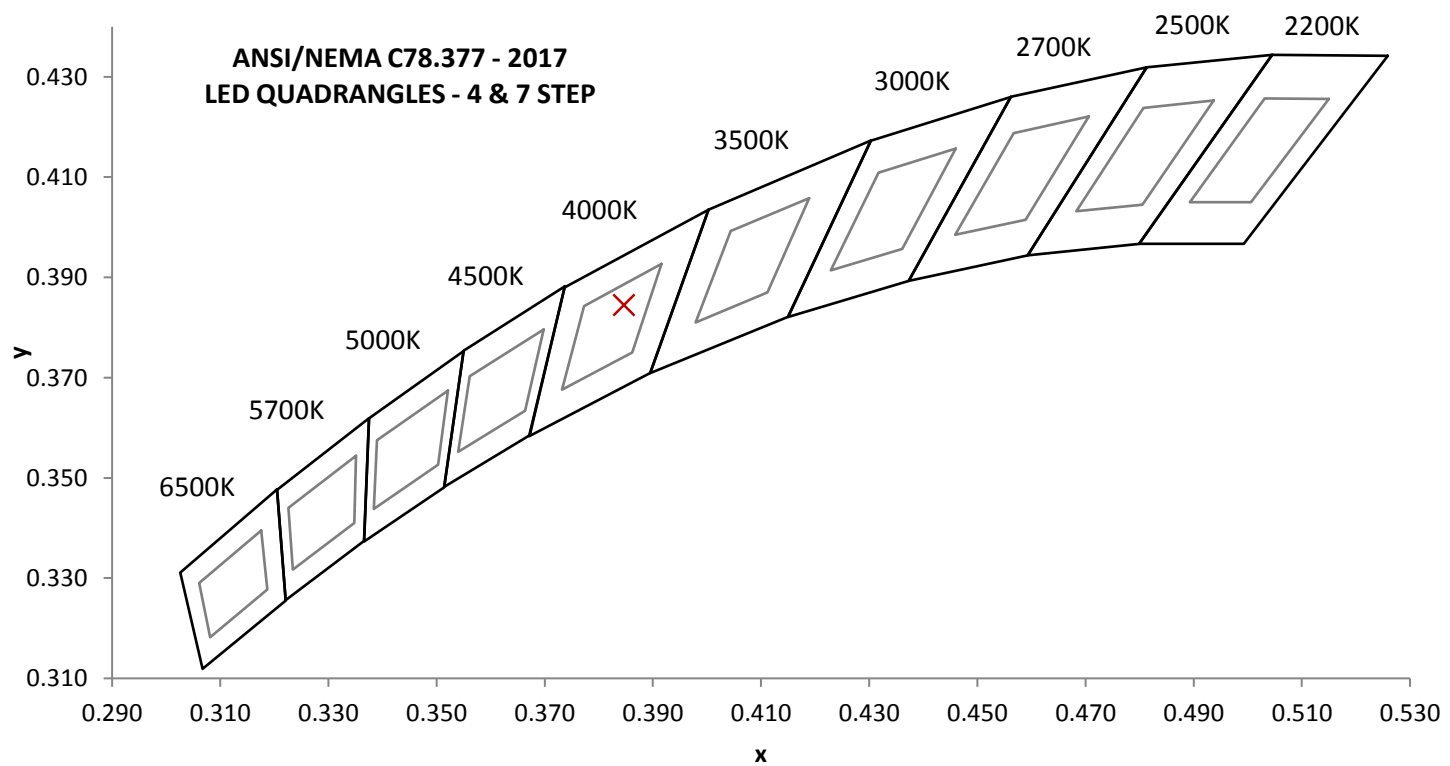
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (l)	Input ATHD (%)
120.02	2974.8	356.70	0.999	2.50
277.01	1318.9	346.46	0.960	8.53

Measured at 120.02(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (l)	CRI - R9 (l)
49350.9	138.4	3946	73.7	-23.4

Duv (l)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0024	0.385	0.384	0.225	0.506

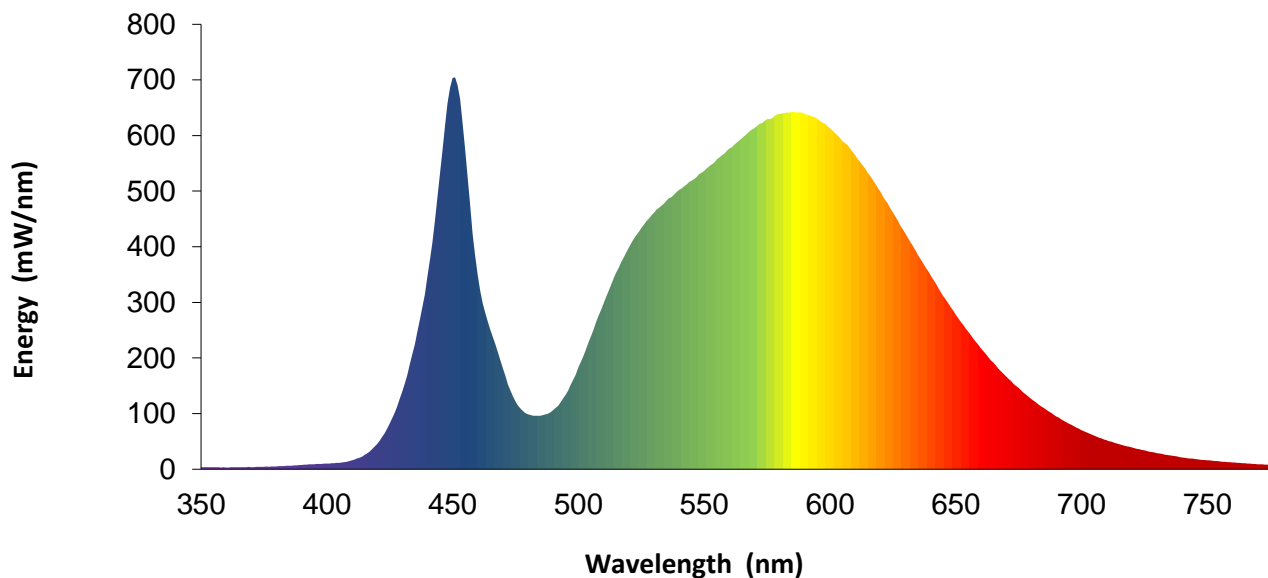


REPORT NO. 104357589CHI-038

SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	3.8		460	349.0		570	613.5		680	126.9
355	3.9		465	250.9		575	629.5		685	110.2
360	3.4		470	181.4		580	638.7		690	95.2
365	3.6		475	121.8		585	642.3		695	82.2
370	3.7		480	98.9		590	638.7		700	70.5
375	4.6		485	96.3		595	629.7		705	60.5
380	5.3		490	106.3		600	612.7		710	52.2
385	6.4		495	134.4		605	589.7		715	45.2
390	7.9		500	183.4		610	564.6		720	39.0
395	9.0		505	239.2		615	532.9		725	33.9
400	10.1		510	298.1		620	498.7		730	29.2
405	11.7		515	353.6		625	461.5		735	24.9
410	15.9		520	397.9		630	423.4		740	21.5
415	25.5		525	433.8		635	384.7		745	18.6
420	45.2		530	461.0		640	348.5		750	16.1
425	81.8		535	483.2		645	312.1		755	14.0
430	139.8		540	502.3		650	278.8		760	12.3
435	224.3		545	518.9		655	247.3		765	10.6
440	346.7		550	536.5		660	218.0		770	9.2
445	531.6		555	557.4		665	191.6		775	8.0
450	703.4		560	576.5		670	167.1		780	7.0
455	575.1		565	595.6		675	146.5		---	---

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. 104357589CHI-038

#	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	Newport Humidity Recorder	iServer	146961	9/3/2020	9/3/2021
7	Labsphere Spectroradiometer	CDS2600	CHI0539	VBU	VBU
8	3 Meter Sphere	SPR600	CHI0088	VBU	VBU
9	Elgar AC Power Supply	CW1251	146112	VBU	VBU
10	Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
11	Yokogawa Power Meter	WT1600	146769	4/6/2020	4/6/2021
12	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	---	---	---
---	---	---	---	---
---	---	---	---	---

Test Configuration	Tested Model No.	Pass/Fail/NA
1	CF-375-VS-120-277-NW	NA

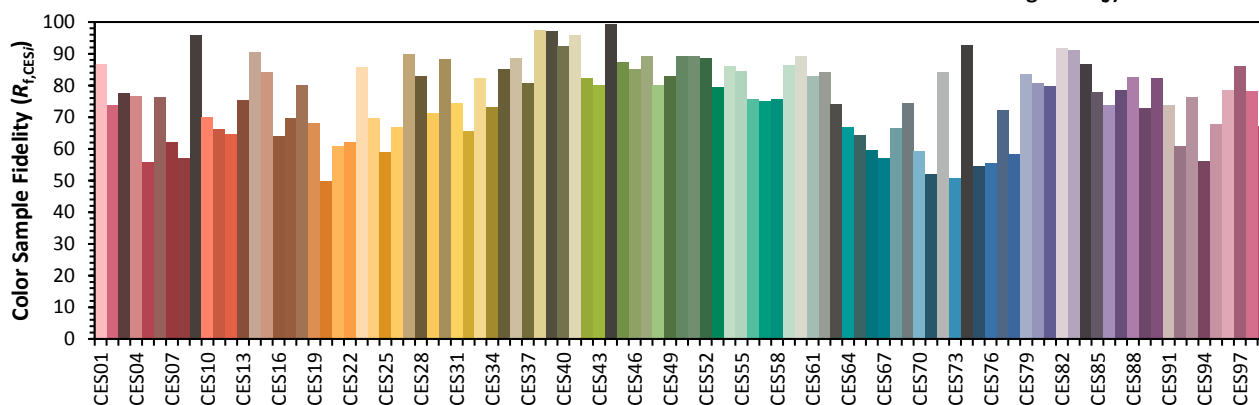
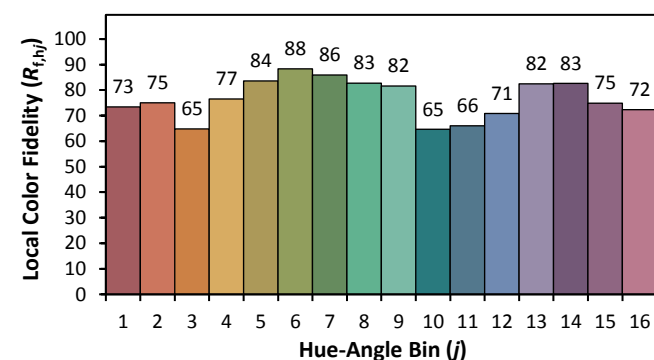
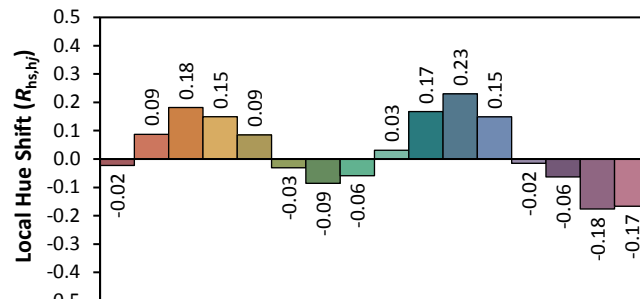
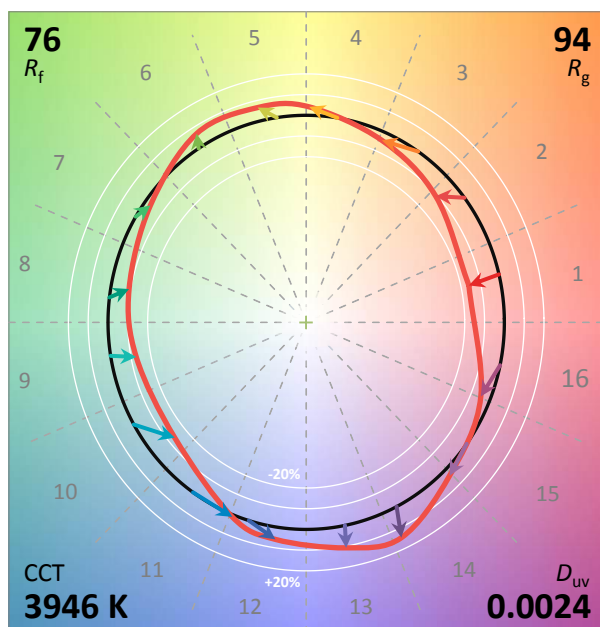
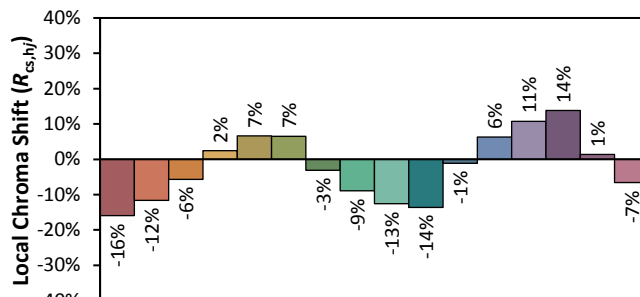
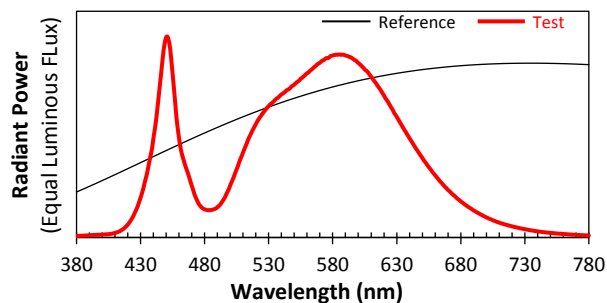
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Phoenix Products LLC

Date: 2/3/2021

Model: CF-375-VS-120-277-NW



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

x 0.3846

y 0.3844

u' 0.2248

v' 0.5055