

# PHOENIX PRODUCTS LLC

## TEST REPORT

### SCOPE OF WORK

LED Performance Testing

### MODEL NUMBER

CF-375-VS-120-277-WW

### PROJECT NUMBER

G104357589

### REPORT NUMBER

104357589CHI-042

### ISSUE DATE

2/19/2021

### REVISED DATE

None

### TEST DATES

02/03/2021 through 02/15/2021.

### DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

© 2017 INTERTEK



**REPORT NUMBER**

104357589CHI-042

**MODEL NUMBER(s)**

CF-375-VS-120-277-WW

**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-042**

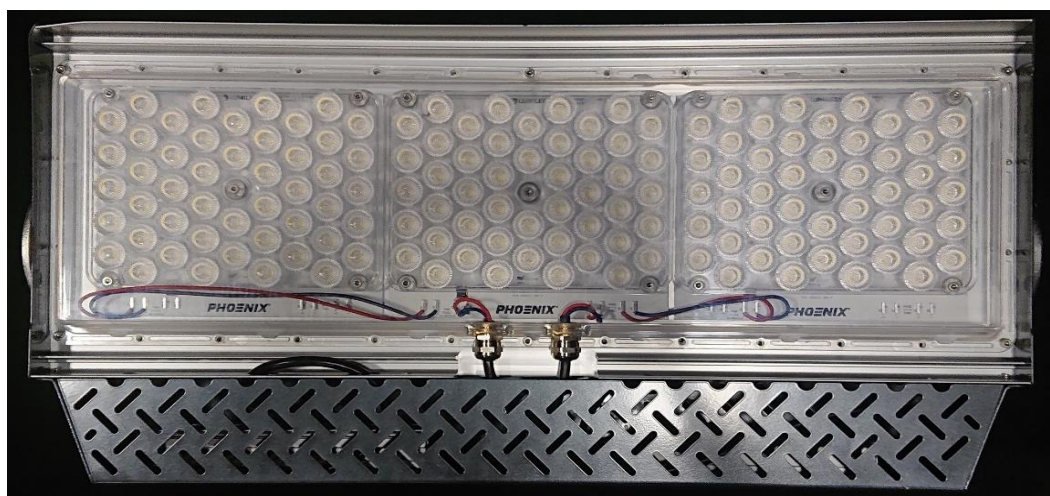
**ITEMS RECEIVED**

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

**TESTED SAMPLE CONFIGURATIONS**

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

**SAMPLE PHOTOS - TESTED CONFIGURATIONS**



## SUMMARY

REPORT NO. 104357589CHI-042

### PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	CF-375-VS-120-277-WW
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)	46947.0	47103.7
Input Power (W) @ 120 (Vac)	358.10	359.10
Lumen Efficacy (lm/W)	131.1	131.2
Input Power Factor ( ) @ 120 (Vac)	0.999	0.999

Criteria	Results
Input ATHD (%) @ 120 (Vac)	2.49
Correlated Color Temperature (K)	2703
Color Rendering Index - Ra ( )	72.6
Color Rendering Index - R9 ( )	-28.8
Duv ( )	0.0000
Chromaticity Coordinate (x)	0.460
Chromaticity Coordinate (y)	0.411
Chromaticity Coordinate (u')	0.262
Chromaticity Coordinate (v')	0.527

### 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.

**INTEGRATING SPHERE TESTING**

**REPORT NO. 104357589CHI-042**

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

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

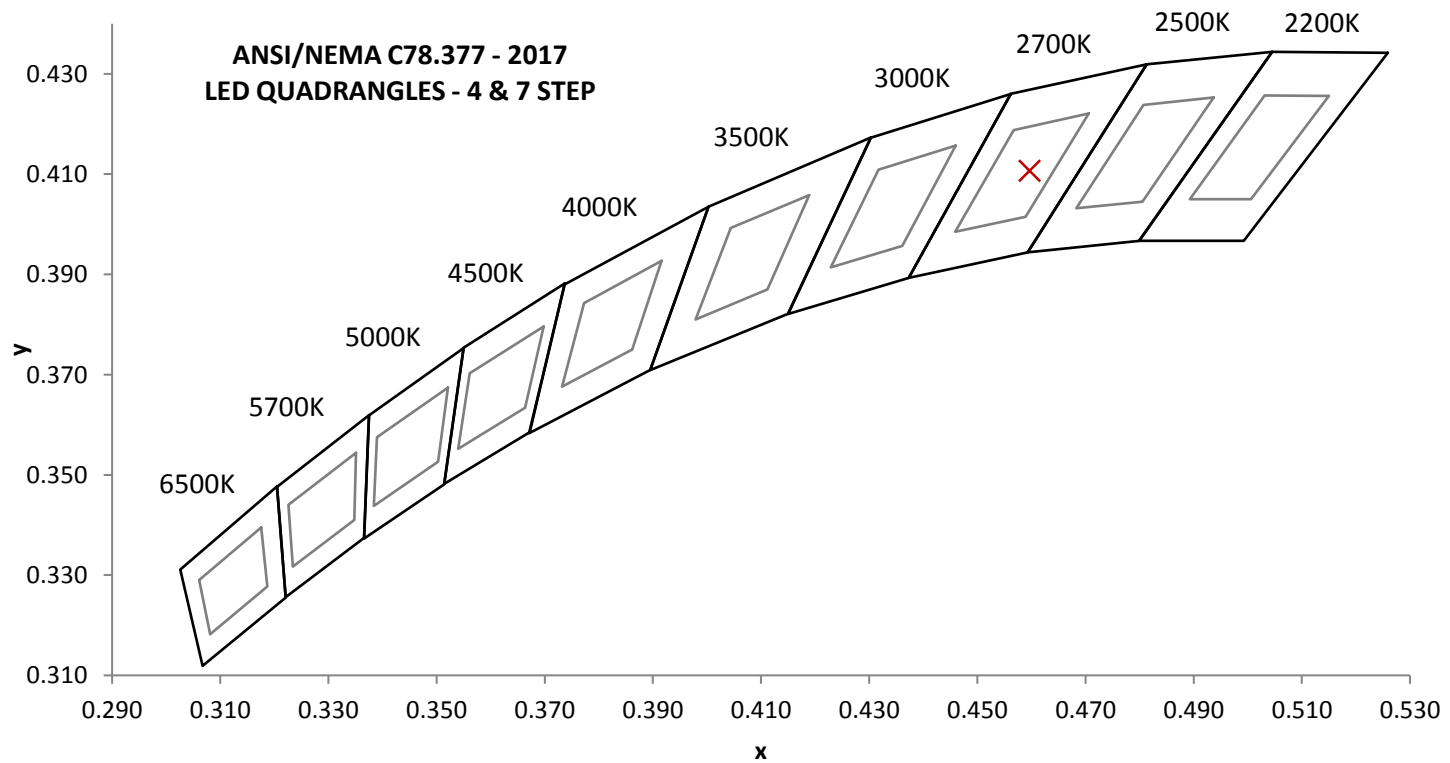
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)	Input ATHD (%)
120.02	2994.8	359.10	0.999	2.49
277.03	1326.4	348.17	0.949	8.34

**Measured at 120.02(Vac)**

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (I)	CRI - R9 (I)
47103.7	131.2	2703	72.6	-28.8

Duv (I)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0000	0.460	0.411	0.262	0.527

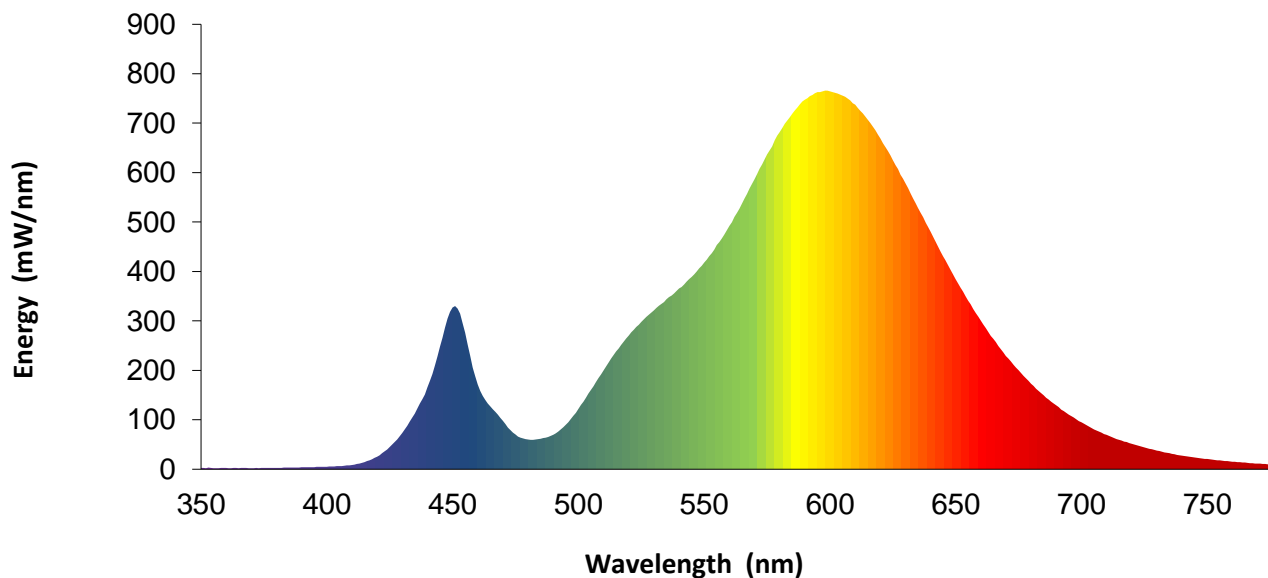


REPORT NO. 104357589CHI-042

SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	2.8		460	171.8		570	586.7		680	173.0
355	2.0		465	126.9		575	636.8		685	150.0
360	2.7		470	97.8		580	682.2		690	129.1
365	2.3		475	70.0		585	719.5		695	110.7
370	2.2		480	59.9		590	747.3		700	94.8
375	2.9		485	61.4		595	762.7		705	80.7
380	2.8		490	69.9		600	764.3		710	69.5
385	3.4		495	89.9		605	755.8		715	59.5
390	4.0		500	122.3		610	737.1		720	51.5
395	4.5		505	160.6		615	707.1		725	44.2
400	5.1		510	199.9		620	669.4		730	37.9
405	6.2		515	238.5		625	625.0		735	32.3
410	8.7		520	270.2		630	578.0		740	27.6
415	14.5		525	297.8		635	528.1		745	23.7
420	25.6		530	321.3		640	480.0		750	20.6
425	44.6		535	343.9		645	431.4		755	17.9
430	73.6		540	365.5		650	384.4		760	15.3
435	112.5		545	388.9		655	341.1		765	13.4
440	165.5		550	417.8		660	301.1		770	11.5
445	247.6		555	453.7		665	263.9		775	9.9
450	327.4		560	492.3		670	229.2		780	8.6
455	275.9		565	537.8		675	200.7		---	---

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

**TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING**

**REPORT NO. 104357589CHI-042**

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

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

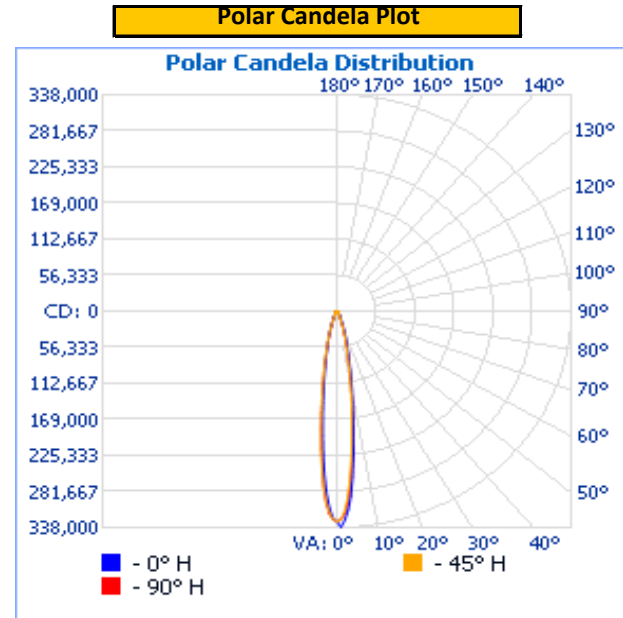
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up	120.0	2986.5	358.10	0.999

Light Output (lm)	Lumen Efficacy (lm/W)
46947.0	131.1

**INTENSITY SUMMARY - CANDELA**

Angle	0	25	45	65	90
0	328576	328576	328576	328576	328576
5	259449	233111	235381	238858	244123
10	124989	109962	110995	113340	115367
15	58331	50522	49630	50074	50847
20	28301	23443	22146	21553	21565
25	13422	10916	10139	9646	9506
30	8297	6681	6157	5974	5906
35	4981	3972	3692	3504	3467
40	3699	3030	2874	2696	2651
45	2962	2412	2312	2208	2096
50	2389	1996	1874	1802	1718
55	1958	1671	1577	1517	1472
60	1620	1368	1320	1257	1212
65	1254	1080	1045	1005	942
70	905	772	752	721	664
75	592	494	479	471	425
80	297	239	237	239	214
85	84	64	66	76	66
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

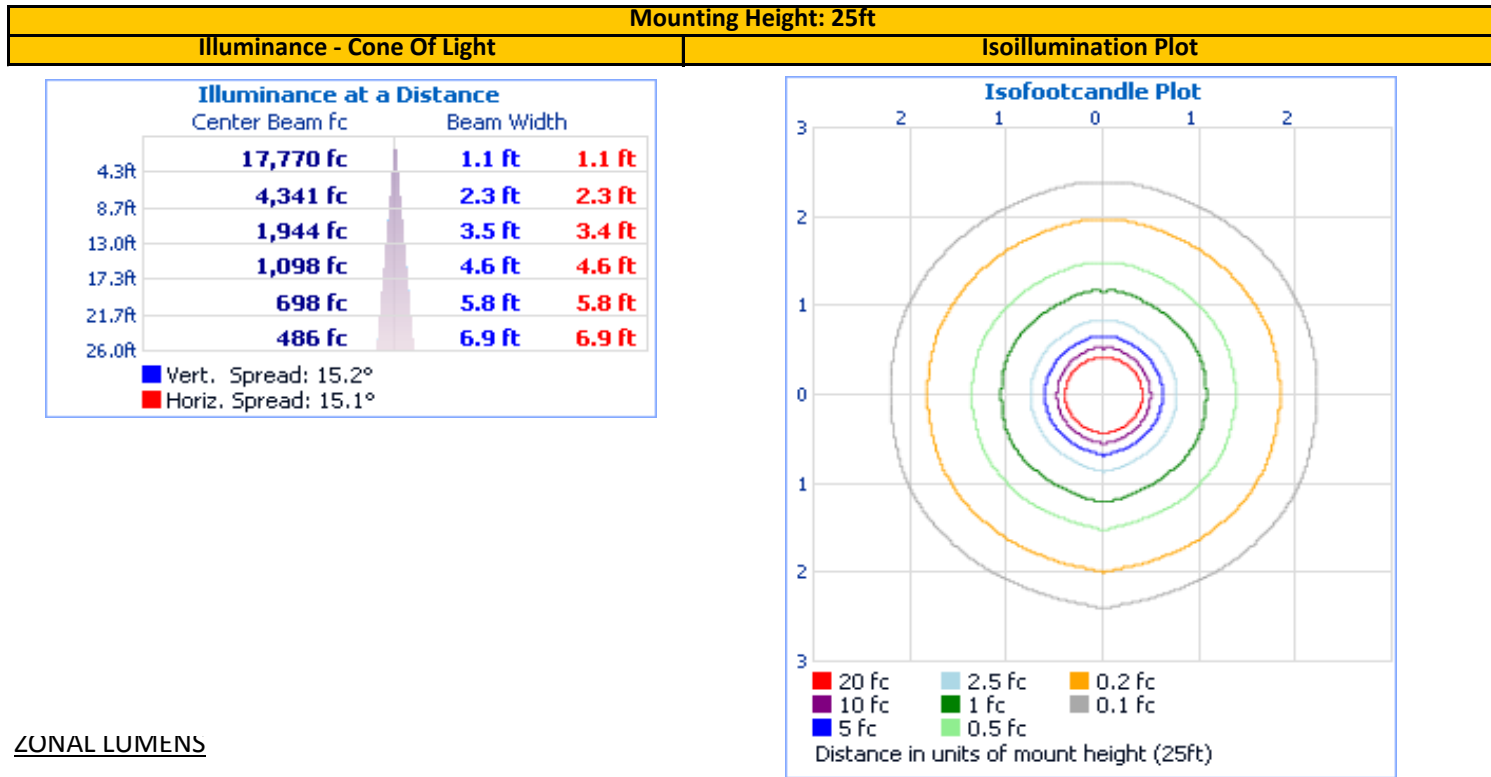
Entire luminous intensity matrix found in .IES file





REPORT NO. 104357589CHI-042

ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	39,345.4	83.8%	0-10	18743.9	39.9%
0-40	41,956.9	89.4%	10-20	15140.6	32.3%
0-60	45,260.9	96.4%	20-30	5460.9	11.6%
60-90	1,686.1	3.6%	30-40	2611.5	5.6%
70-100	636.5	1.4%	40-50	1846.5	3.9%
90-120	0.0	0.0%	50-60	1457.5	3.1%
0-90	46,947.0	100.0%	60-70	1049.6	2.2%
90-180	0.0	0.0%	70-80	530.9	1.1%
0-180	46,947.0	100.0%	80-90	105.7	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%



## EQUIPMENT LIST

REPORT NO. 104357589CHI-042

#	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
7	Multi Channel Spectroradiometer	OL770	CHI0092	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	---	---	---
---	---	---	---	---
---	---	---	---	---

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

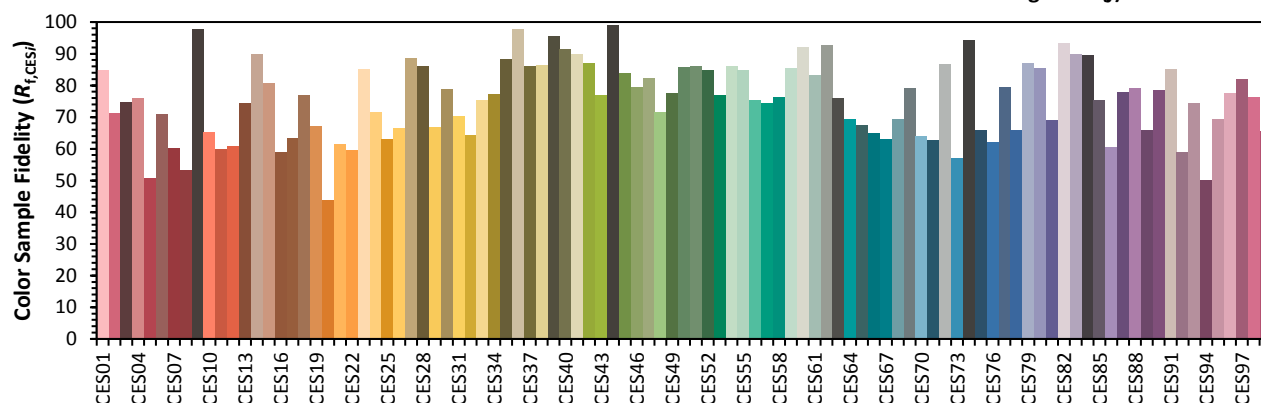
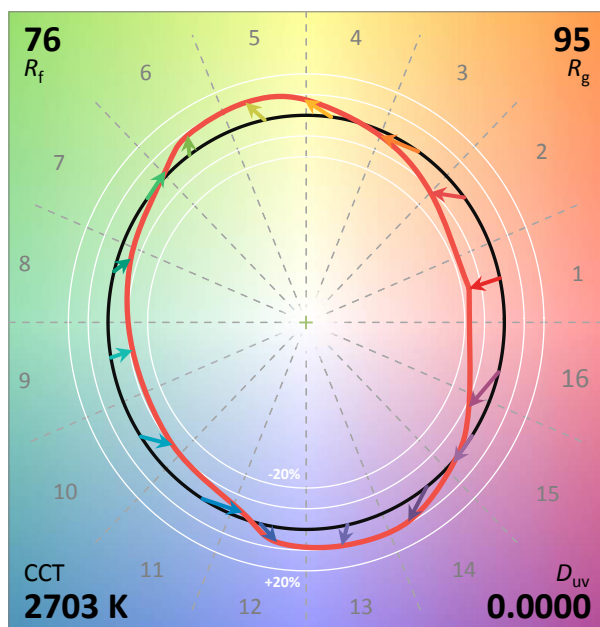
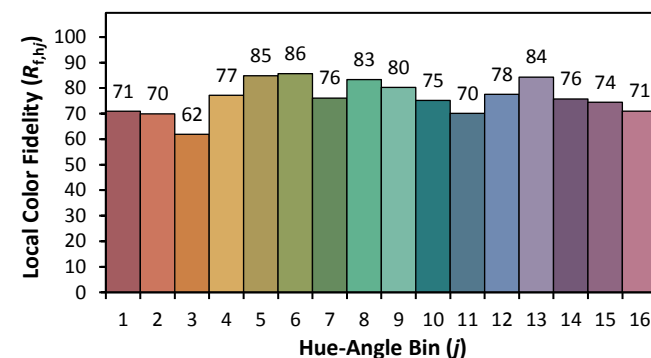
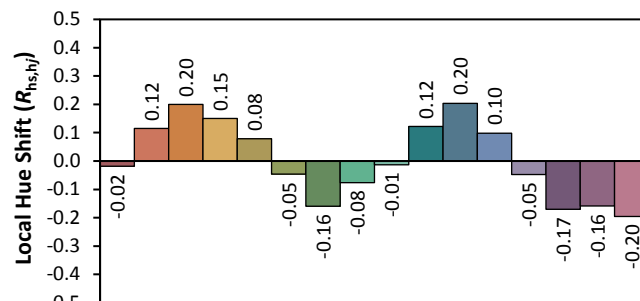
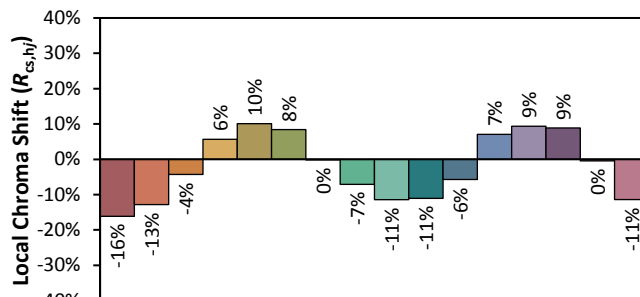
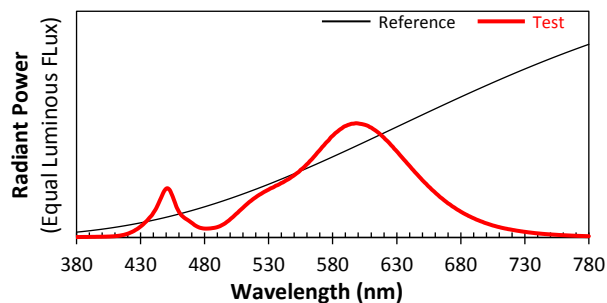
## ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Phoenix Products LLC

Date: 2/3/2021

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



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

 $x$  0.4597 $y$  0.4106 $u'$  0.2624 $v'$  0.5273