

Test Report

Report Number: L21016

Date: Feb 12, 2021

Issued by:

Dialight Optics Laboratory
1501 Route 34 South, Farmingdale, NJ 07727

Test of one F1 - Flood Light
Unit manufacturer: Dialight Corporation
Unit model number: F1x-4FN2-Fxxx-xxx

Issued to:

Dialight Corporation
1501 Route 34 South, Farmingdale, NJ 07727

Tests performed: Photometric characterization and temperature measurement per the described standards.

Dates of test: January 19, 2021 through January 19, 2021

Standards used: All tests are performed in accordance with procedures and guidelines prescribed by the American National Standards Institute (ANSI) or Illuminating Engineering Society of North America (IES):

- IES LM-79:2008: Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI/UL 1598:2008: Underwriters Laboratories Inc. Standard for Safety: Luminaires
- ENERGY STAR Manufacturer's Guide for Qualifying Solid State Lighting Luminaires Version 2.1

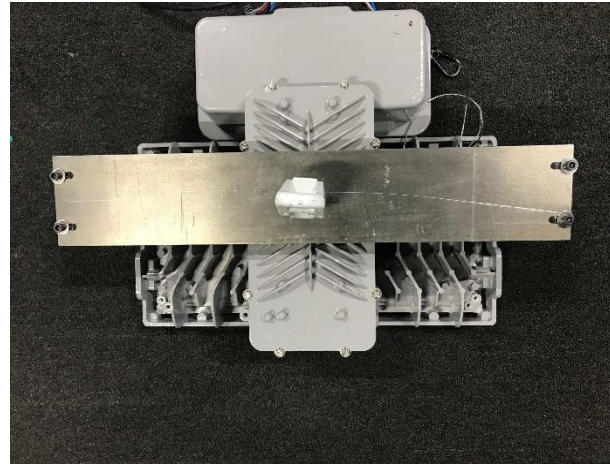
Description of sample:

Sample Number: L21016
Manufacturer: Dialight Corporation
Product Name: PC Window, Asymmetric Forward Throw (Type IV), 80 CRI NW, 100-277V, 30K
Description: F1 - Flood Light
Model Number: F1x-4FN2-Fxxx-xxx

Report Summary

Sample number L21016
Dialight unit model number F1x-4FN2-Fxxx-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	24577 (lumens)	24250 (lumens)
Electrical Power:	242.6 (W)	239.7 (W)
Luminous Efficacy:	101.3 (lumens/W)	101.2 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 242.6 (W)
Power Factor (120VAC): 0.995696
Current ATHD % (120VAC): 4.88069
Input Power (277VAC): 230.3 (W)
Power Factor (277VAC): 0.967
Current ATHD % (277VAC): 10.67

Color Measurements:

Correlated Color Temperature (CCT): 4166
Color Rendering Index (CRI): 84.0934
Chromaticity Coordinate (x): 0.374
Chromaticity Coordinate (y): 0.374
Chromaticity Coordinate (u'): 0.222
Chromaticity Coordinate (v'): 0.333
DUV: 0.0006

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21016.

Dialight unit model number F1x-4FN2-Fxxx-xxx

Test Conditions:

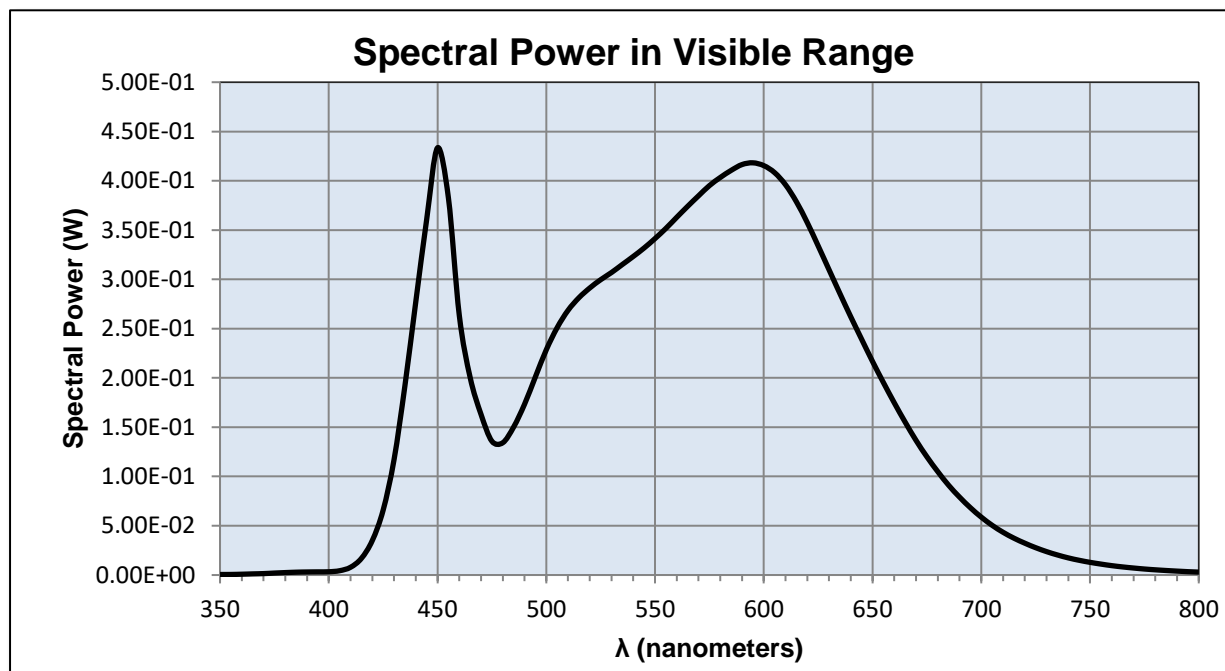
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 2.03649 (A)
Input Power: 242.6 (W)
Input Power Factor: 0.995696
Current ATHD: 4.88069 (%)

Photometric measurements:

Luminous Flux: 24577.44 (lumens)
Luminous Efficacy: 101.3 (lumens/W)
Correlated Color Temperature (CCT): 4166 (K)
CRI -Ra: 84.0934
CRI -R9: 11.673
DUV: 0.0006
CIE Coordinate (x): 0.374
CIE Coordinate (y): 0.374
CIE Coordinate (u'): 0.222
CIE Coordinate (v'): 0.333
TM30_Rf: 83.8
TM30_Rg: 96.3
TM30_Rcs_hue1: -11.20 %



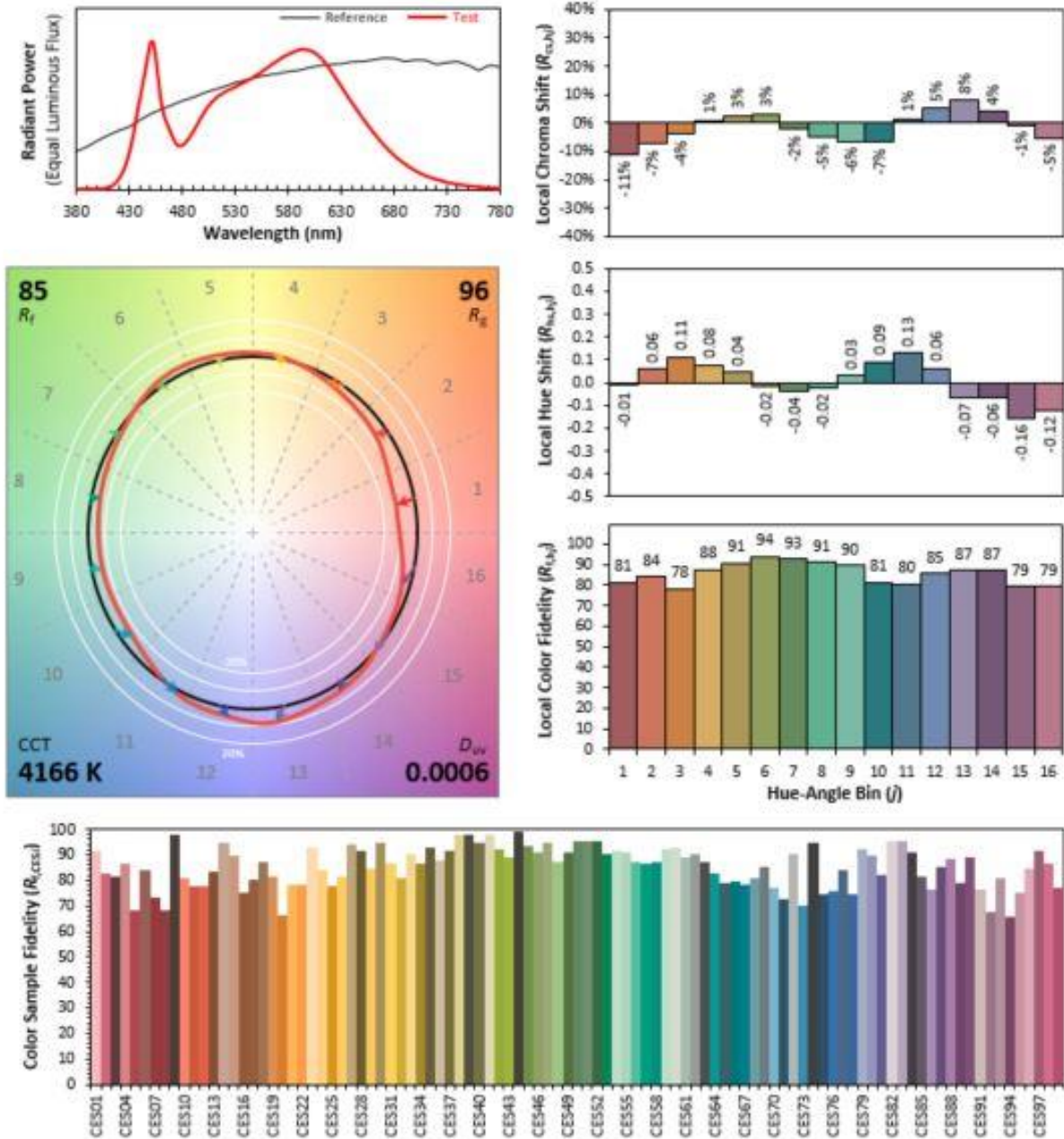
Test Results: Integrating Sphere

Results continued from previous page.

Tabulated Spectral Power in Visible Range:

λ (nm)	(W/nm)	λ (nm)	(W/nm)	λ (nm)	(W/nm)	λ (nm)	(W/nm)
350	0.00056	490	0.17323	630	0.30977	770	0.00710
355	0.00059	495	0.20103	635	0.28559	775	0.00611
360	0.00082	500	0.22848	640	0.26195	780	0.00529
365	0.00114	505	0.25099	645	0.23921	785	0.00459
370	0.00145	510	0.26855	650	0.21671	790	0.00396
375	0.00198	515	0.28130	655	0.19531	795	0.00341
380	0.00247	520	0.29122	660	0.17472	800	0.00298
385	0.00289	525	0.29961	665	0.15512		
390	0.00311	530	0.30694	670	0.13664		
395	0.00322	535	0.31510	675	0.11997		
400	0.00333	540	0.32321	680	0.10492		
405	0.00439	545	0.33182	685	0.09105		
410	0.00787	550	0.34138	690	0.07907		
415	0.01686	555	0.35168	695	0.06827		
420	0.03495	560	0.36298	700	0.05876		
425	0.06588	565	0.37407	705	0.05046		
430	0.11700	570	0.38473	710	0.04338		
435	0.19201	575	0.39508	715	0.03742		
440	0.27709	580	0.40333	720	0.03232		
445	0.36055	585	0.41055	725	0.02776		
450	0.43348	590	0.41645	730	0.02377		
455	0.38267	595	0.41821	735	0.02036		
460	0.26349	600	0.41538	740	0.01739		
465	0.20048	605	0.40821	745	0.01494		
470	0.16301	610	0.39595	750	0.01288		
475	0.13575	615	0.37869	755	0.01110		
480	0.13420	620	0.35758	760	0.00952		
485	0.15019	625	0.33400	765	0.00822		

IES TM-30-18 Color Rendition Report



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

x 0.3737
 y 0.3737
 u' 0.2219
 v' 0.4992

CIE 13.3-1995	
(CRI)	
R_a	84
R_g	12

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L21016.
Dialight unit model number F1x-4FN2-Fxxx-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 2.0136 (A)
Input Power: 239.7 (W)
Power Factor: 0.9952

Photometric measurements:

Absolute Luminous Flux: 24250.3 (lumens)
Luminous Efficacy: 101.2 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	3472	3462	3472	3483	3472	
5.00	4305	4037	3514	3105	2982	365
15.00	8496	6265	3877	2765	2460	1428
25.00	15474	8397	4650	2502	1801	3398
35.00	19345	7986	5321	2360	1676	5357
45.00	28434	9634	5402	2262	1306	8872
55.00	10325	12818	5000	2035	1063	5419
65.00	3202	2441	1852	675	830	1867
75.00	1149	318	237	227	940	794
85.00	110	33	27	31	75	39
90.00	6	1	1	1	2	

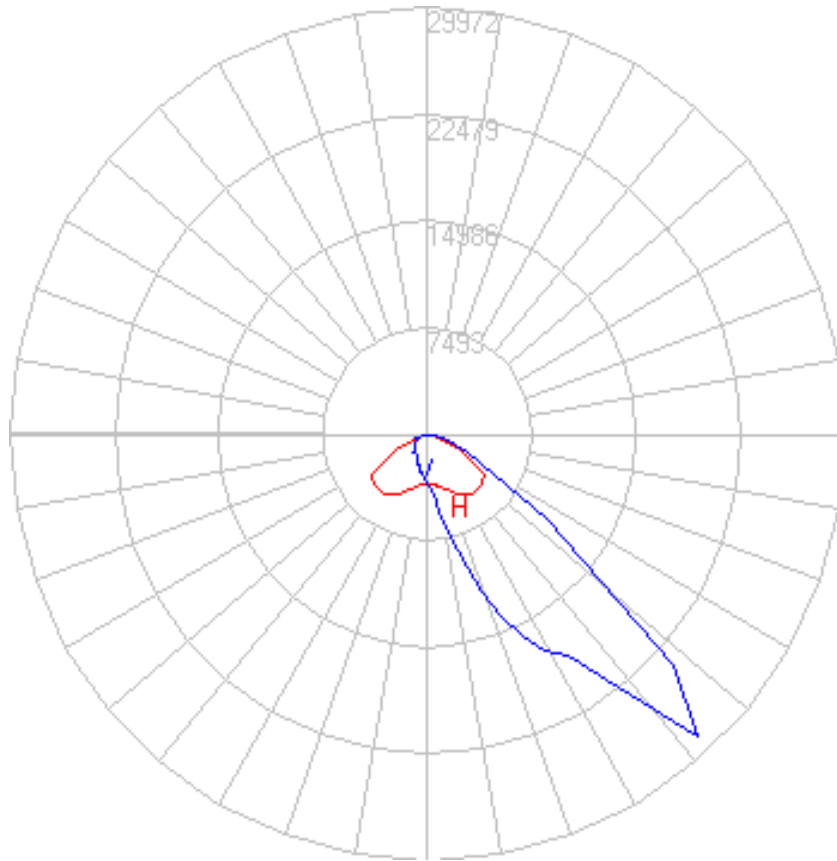
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	4561.77	18.81	18.81
0 to 40	8975.29	37.01	37.01
0 to 60	21465.54	88.52	88.52
0 to 90	24250.29	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	24250.29	100.00	100.00

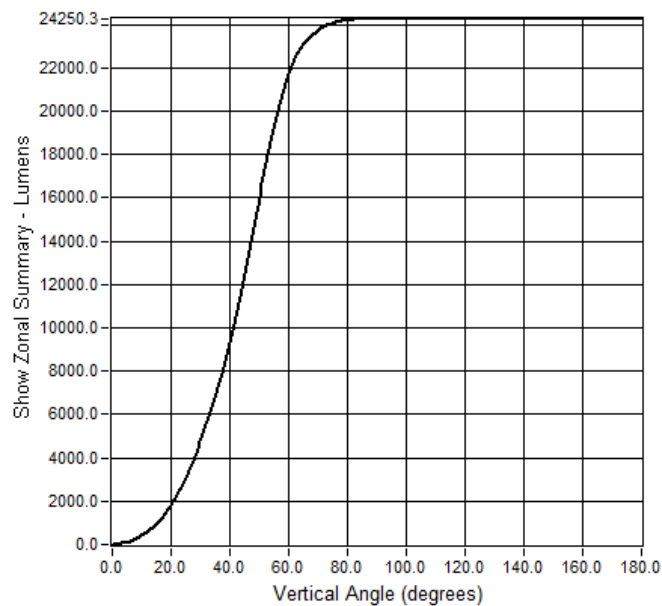
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



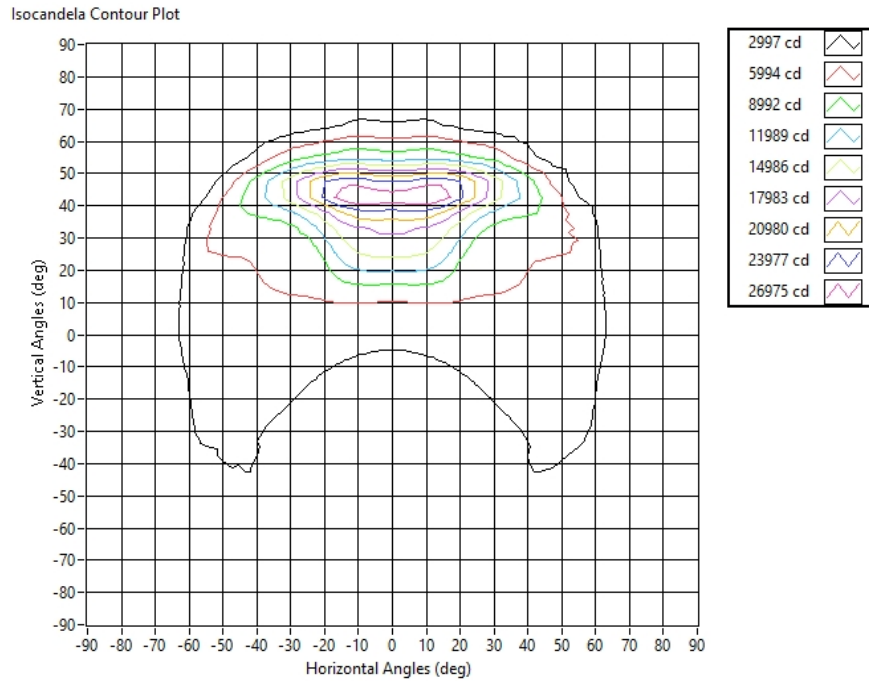
Zonal Flux Graph



Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (ft)	Beam Cone Width (ft)	Orthogonal Beam Cone Width (ft)	Projected Illuminance (fc)
2	6.89	9.30	868.9
4	13.79	18.59	217.2
6	20.68	27.89	96.5
8	27.58	37.19	54.3
10	34.47	46.48	34.8
12	41.37	55.78	24.1
14	48.26	65.08	17.7
16	55.16	74.37	13.6
18	62.05	83.67	10.7
20	68.94	92.97	8.7

Equipment Used:

Equipment Name	Model Number
Omega TC	DPI8
YOKOGAWA Digital Power Meter	11/26/3981
LSI High Speed Mirror Goniometer	6240T
Elgar AC Power Supply	CW1251P
Sorensen DC Power Supply	XHR150-7
Dialight Confirmation Sample	HB1N4N
Dialight Confirmation Sample	HB1N4J
Fluke 8808A Digit Multimeter	8808A
Step-Up Transformer	
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
Fluke 971 Humidity Meter	8/28/1902
GwINSTEK DC Power Supply	GEP172679
Dialight Confirmation Sample	1/0/1900
Labsphere calibration lamp for 2M sphere	SCL-1400
Labshere 2M sphere	Illumia Plus 2600-1
Labshere Controller	PM-150-140
Labshere Spectrometer- CDS 2600 Spectrometer	CDS-2600
Xitron Power Analyzer	9/1/1907
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo

Additional Notes:

Samples are received and tested in new and undamaged condition, unless otherwise noted. The results shown in this report are representative only of the test samples submitted. This data has been issued to the assignee for further evaluation. This report shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. This report shall not be reproduced, except in full, without the express written permission of Dialight Optics Laboratory.

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 Optical Engineer
 Approved Signatory