

Test Report

Report Number: L21014

Date: Jan 28, 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-Cxxx-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 15, 2021 through January 15, 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

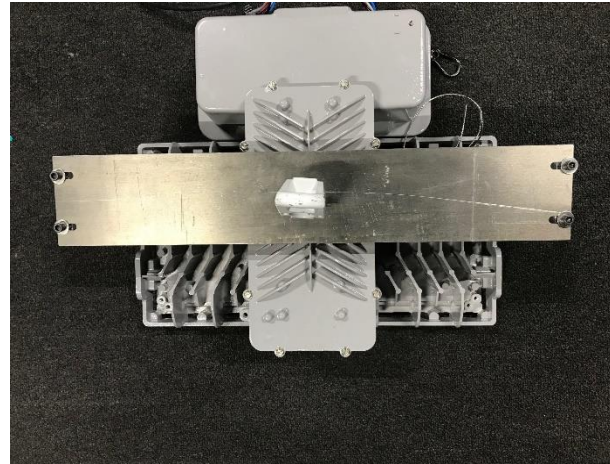
Description of sample:

Sample Number: L21014
Manufacturer: Dialight Corporation
Product Name: PC Window, Asymmetric Forward Throw (Type IV), 80 CRI NW, 100-277V, 18K
Description: F1 - Flood Light
Model Number: F1x-4FN2-Cxxx-xxx

Report Summary

Sample number L21014
Dialight unit model number F1x-4FN2-Cxxx-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	15209 (lumens)	14982 (lumens)
Electrical Power:	128.2 (W)	127.2 (W)
Luminous Efficacy:	118.6 (lumens/W)	117.8 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 128.2 (W)
 Power Factor (120VAC): 0.991824
 Current ATHD % (120VAC): 5.5121
 Input Power (277VAC): 124.3 (W)
 Power Factor (277VAC): 0.8889
 Current ATHD % (277VAC): 10.52

Color Measurements:

Correlated Color Temperature (CCT): 4005
 Color Rendering Index (CRI): 84.4662
 Chromaticity Coordinate (x): 0.381
 Chromaticity Coordinate (y): 0.381
 Chromaticity Coordinate (u'): 0.224
 Chromaticity Coordinate (v'): 0.336
 DUV: 0.0016

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21014.

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

Test Conditions:

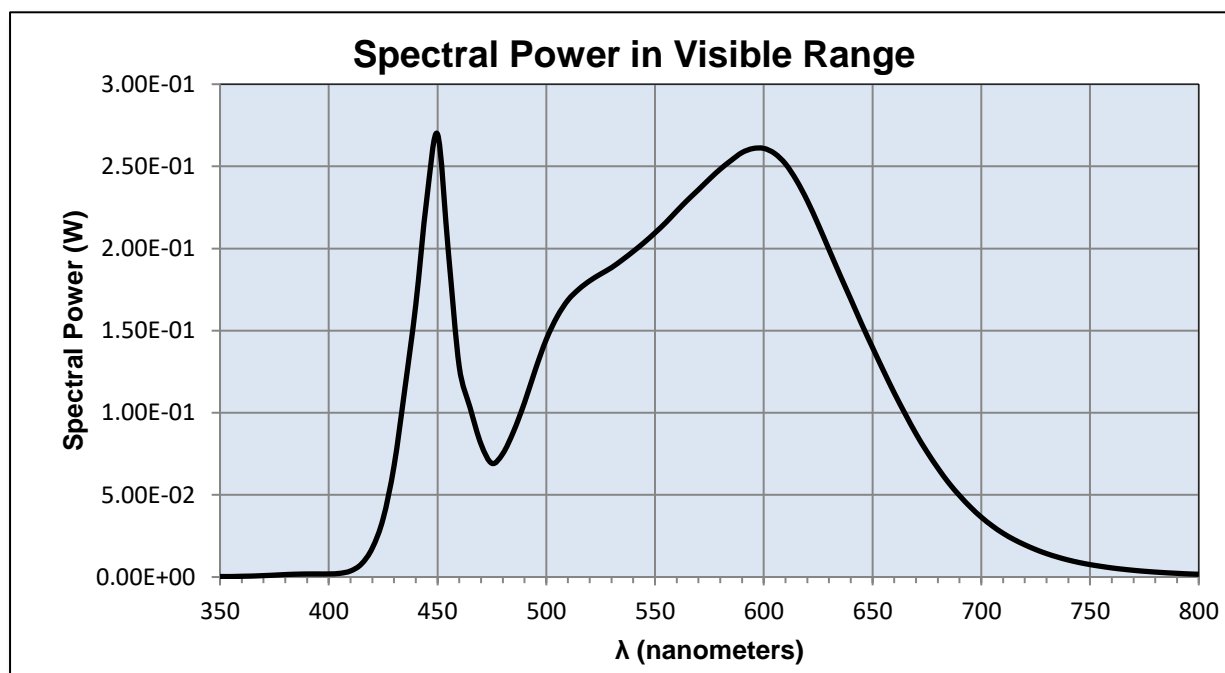
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
 Input Current: 1.07733 (A)
 Input Power: 128.2 (W)
 Input Power Factor: 0.991824
 Current ATHD: 5.5121 (%)

Photometric measurements:

Luminous Flux: 15209.36 (lumens)
 Luminous Efficacy: 118.6 (lumens/W)
 Correlated Color Temperature (CCT): 4005 (K)
 CRI -Ra: 84.4662
 CRI -R9: 13.0855
 DUV: 0.0016
 CIE Coordinate (x): 0.381
 CIE Coordinate (y): 0.381
 CIE Coordinate (u'): 0.224
 CIE Coordinate (v'): 0.336
 TM30_Rf: 84.5
 TM30_Rg: 97.0
 TM30_Rcs_hue1: -10.80 %



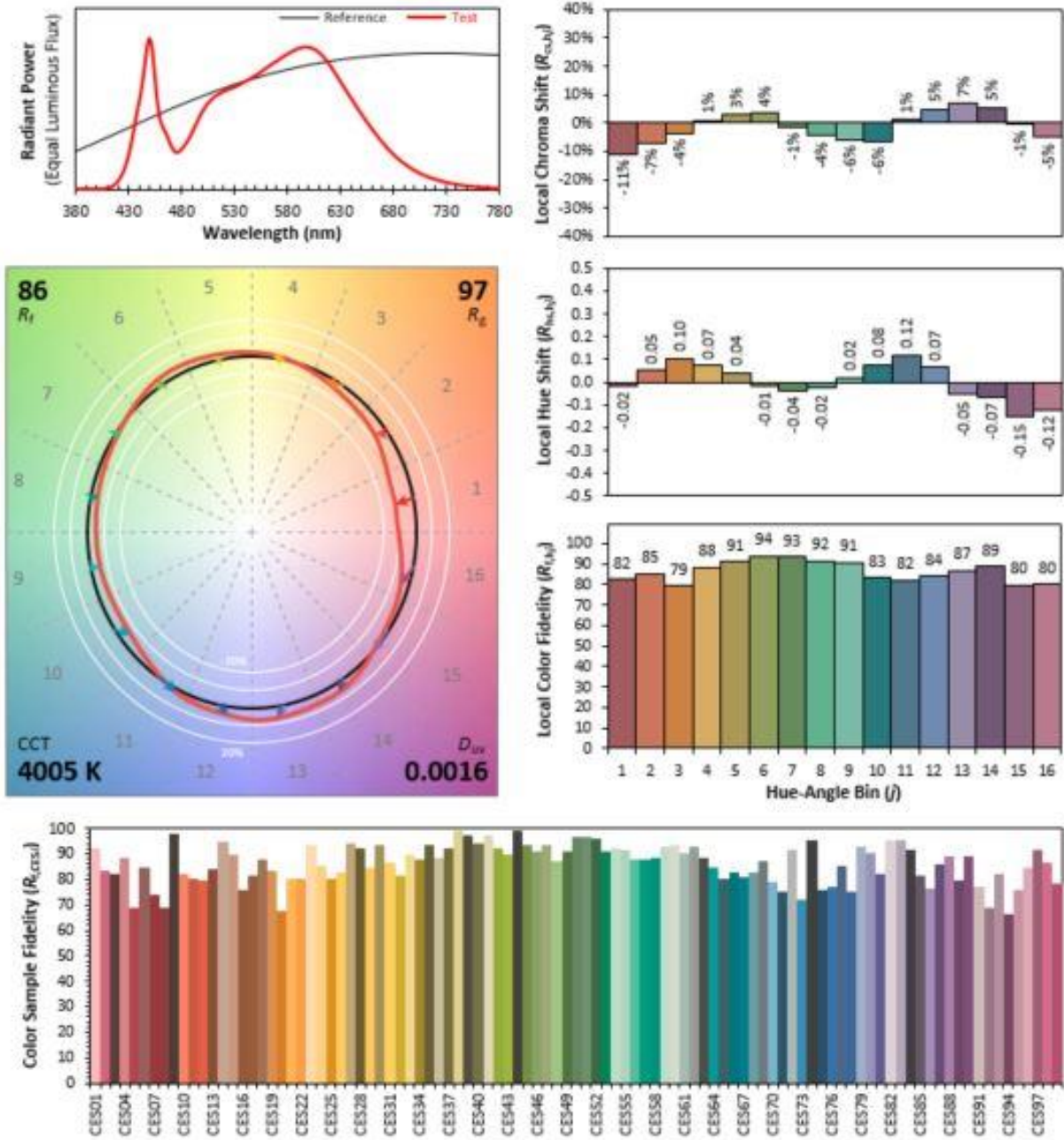
Test Results: Integrating Sphere

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	0.00030	490	0.10620	630	0.19932	770	0.00408
355	0.00031	495	0.12632	635	0.18400	775	0.00350
360	0.00046	500	0.14462	640	0.16912	780	0.00302
365	0.00060	505	0.15850	645	0.15408	785	0.00259
370	0.00087	510	0.16862	650	0.13974	790	0.00225
375	0.00114	515	0.17522	655	0.12566	795	0.00192
380	0.00150	520	0.18034	660	0.11204	800	0.00166
385	0.00174	525	0.18445	665	0.09933		
390	0.00186	530	0.18835	670	0.08720		
395	0.00188	535	0.19312	675	0.07631		
400	0.00189	540	0.19821	680	0.06641		
405	0.00224	545	0.20364	685	0.05737		
410	0.00370	550	0.20953	690	0.04959		
415	0.00792	555	0.21583	695	0.04259		
420	0.01759	560	0.22280	700	0.03645		
425	0.03561	565	0.22953	705	0.03119		
430	0.06759	570	0.23579	710	0.02664		
435	0.11486	575	0.24225	715	0.02285		
440	0.16569	580	0.24831	720	0.01962		
445	0.22942	585	0.25361	725	0.01675		
450	0.26958	590	0.25840	730	0.01427		
455	0.19753	595	0.26083	735	0.01216		
460	0.12781	600	0.26093	740	0.01036		
465	0.10301	605	0.25783	745	0.00883		
470	0.08090	610	0.25147	750	0.00756		
475	0.06919	615	0.24153	755	0.00651		
480	0.07509	620	0.22914	760	0.00555		
485	0.08876	625	0.21467	765	0.00476		

IES TM-30-18 Color Rendition Report



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

x 0.3813
 y 0.3807
 u' 0.2241
 v' 0.5034

CIE 13.3-1995	
(CRI)	
R_a	84
R_g	13

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L21014.
Dialight unit model number F1x-4FN2-Cxxx-xxx

Electrical Measurements:

Input Voltage: 119.89 (VAC)
Input current: 1.0697 (A)
Input Power: 127.2 (W)
Power Factor: 0.9912

Photometric measurements:

Absolute Luminous Flux: 14981.6 (lumens)
Luminous Efficacy: 117.8 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	2115	2125	2147	2178	2115	
5.00	2623	2474	2165	1933	1828	224
15.00	5180	3806	2369	1711	1505	872
25.00	9472	4977	2832	1538	1099	2070
35.00	11751	4760	3244	1433	1034	3251
45.00	17756	5554	3301	1365	796	5479
55.00	6578	7628	3059	1203	650	3360
65.00	2015	1558	1051	419	504	1157
75.00	734	203	143	140	572	496
85.00	74	21	16	19	30	22
90.00	4	1	0	1	1	

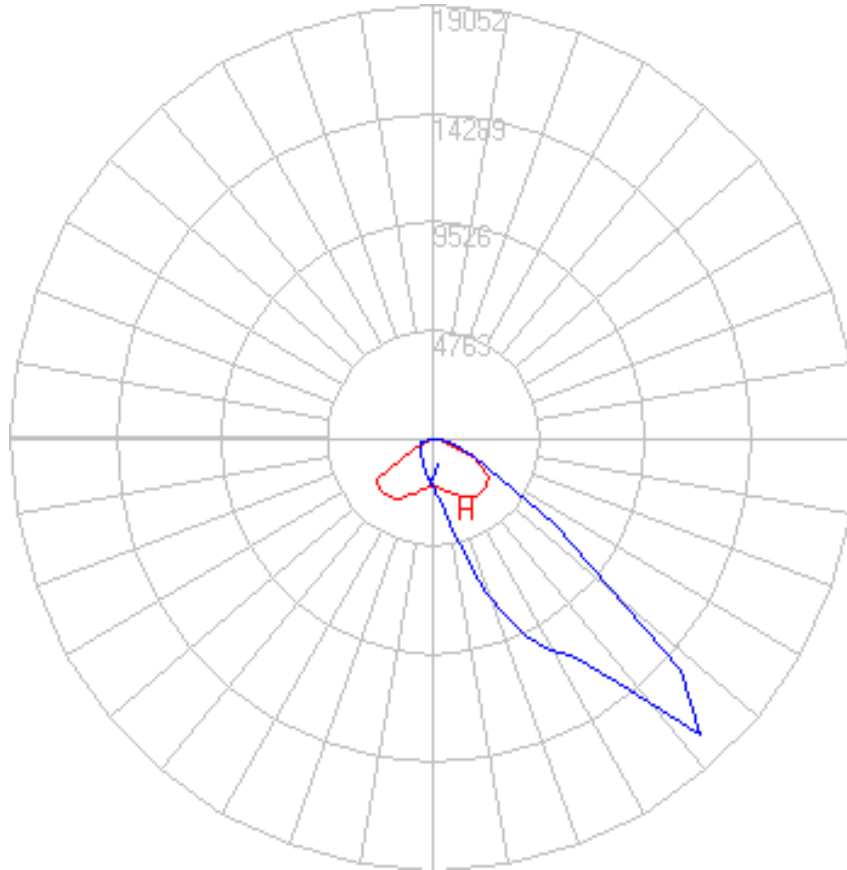
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	2832.72	18.91	18.91
0 to 40	5561.82	37.12	37.12
0 to 60	13283.18	88.66	88.66
0 to 90	14981.58	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	14981.58	100.00	100.00

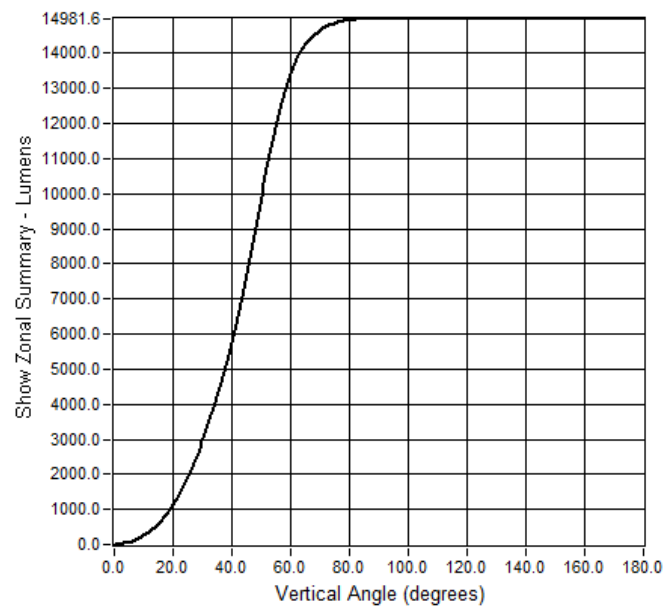
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



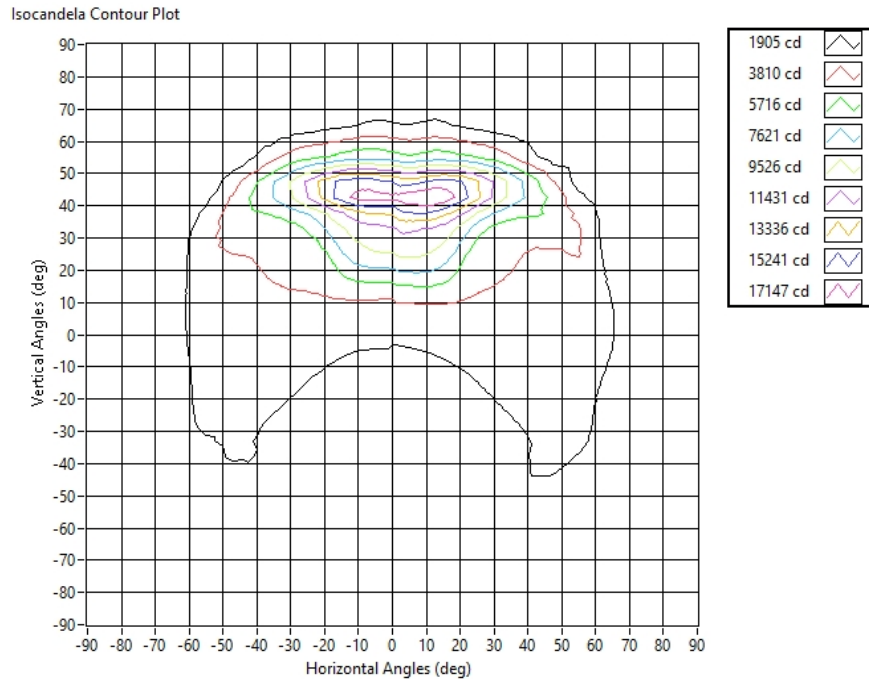
Zonal Flux Graph



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	7.47	9.00	537.2
4	14.95	17.99	134.3
6	22.42	26.99	59.7
8	29.89	35.99	33.6
10	37.37	44.99	21.5
12	44.84	53.98	14.9
14	52.31	62.98	11.0
16	59.79	71.98	8.4
18	67.26	80.98	6.6
20	74.73	89.97	5.4

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