

# Test Report

Report Number: L20015

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-Exxx-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 4, 2021 through January 18, 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

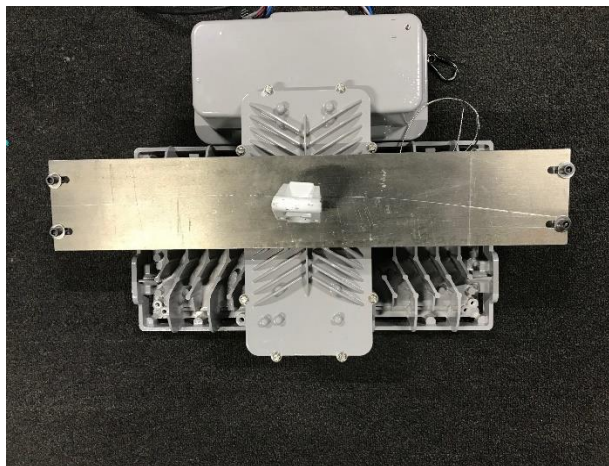
**Description of sample:**

Sample Number: L20015  
Manufacturer: Dialight Corporation  
Product Name: PC Window, Asymmetric Forward Throw (Type IV), 80 CRI NW, 100-277V, 24K  
Description: F1 - Flood Light  
Model Number: F1x-4FN2-Exxx-xxx

## Report Summary

Sample number L20015  
Dialight unit model number F1x-4FN2-Exxx-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	20031 (lumens)	19656 (lumens)
Electrical Power:	181.2 (W)	178.9 (W)
Luminous Efficacy:	110.5 (lumens/W)	109.9 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 181.2 (W)  
 Power Factor (120VAC): 0.994392  
 Current ATHD % (120VAC): 5.17504  
 Input Power (277VAC): 173.5 (W)  
 Power Factor (277VAC): 0.95  
 Current ATHD % (277VAC): 10.08

### Color Measurements:

Correlated Color Temperature (CCT): 4080  
 Color Rendering Index (CRI): 84.2828  
 Chromaticity Coordinate (x): 0.378  
 Chromaticity Coordinate (y): 0.377  
 Chromaticity Coordinate (u'): 0.223  
 Chromaticity Coordinate (v'): 0.334  
 DUV: 0.0010

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L20015.

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

### Test Conditions:

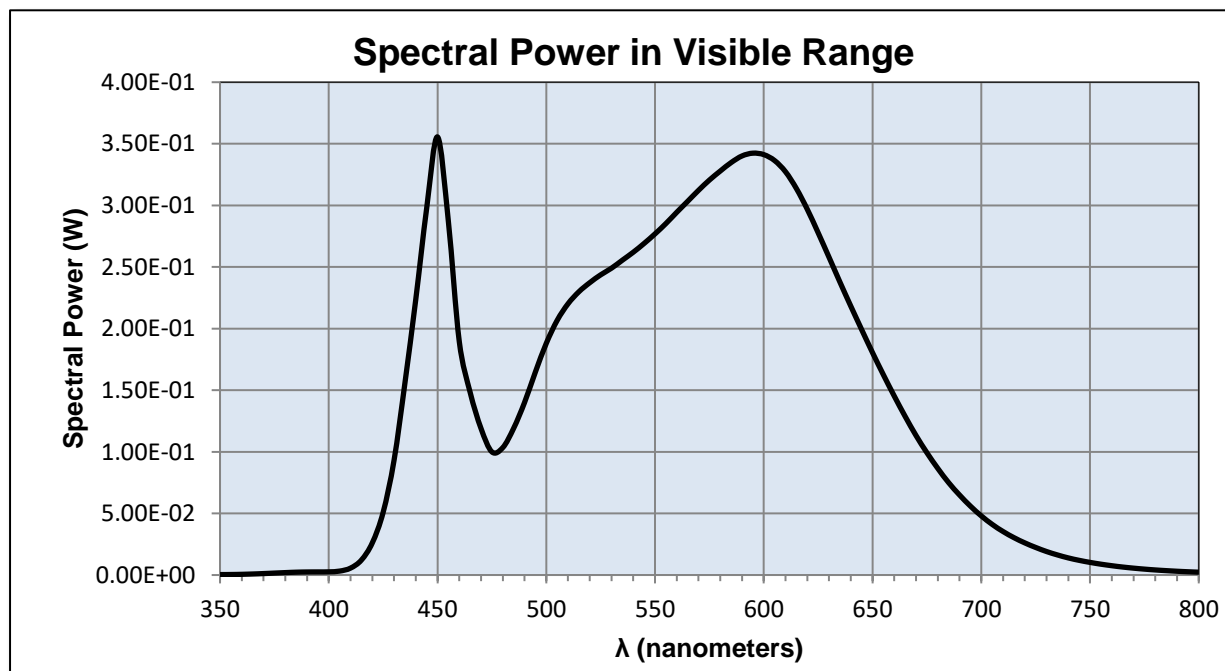
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 1.52243 (A)  
Input Power: 181.2 (W)  
Input Power Factor: 0.994392  
Current ATHD: 5.17504 (%)

### Photometric measurements:

Luminous Flux: 20030.64 (lumens)  
Luminous Efficacy: 110.5 (lumens/W)  
Correlated Color Temperature (CCT): 4080 (K)  
CRI -Ra: 84.2828  
CRI -R9: 12.4707  
DUV: 0.0010  
CIE Coordinate (x): 0.378  
CIE Coordinate (y): 0.377  
CIE Coordinate (u'): 0.223  
CIE Coordinate (v'): 0.334  
TM30\_Rf: 84.2  
TM30\_Rg: 96.7  
TM30\_Rcs\_hue1: -10.98 %



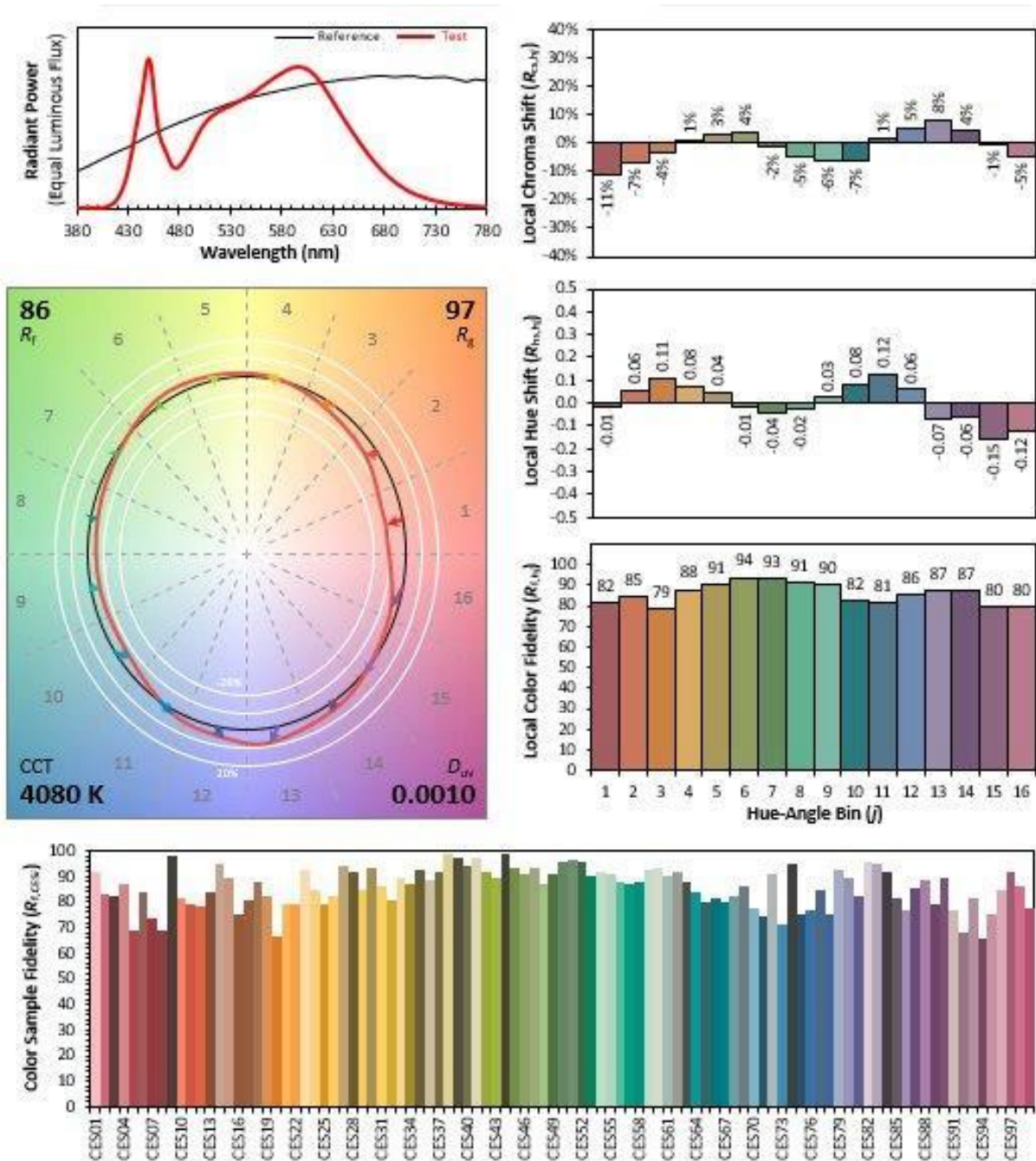
## Test Results: Integrating Sphere

Results continued from previous page.

### Tabulated Spectral Power in Visible Range:

$\lambda$ (nm)	(W/nm)	$\lambda$ (nm)	(W/nm)	$\lambda$ (nm)	(W/nm)	$\lambda$ (nm)	(W/nm)
350	0.00037	490	0.13999	630	0.25792	770	0.00557
355	0.00042	495	0.16479	635	0.23783	775	0.00480
360	0.00058	500	0.18805	640	0.21825	780	0.00412
365	0.00083	505	0.20667	645	0.19924	785	0.00357
370	0.00117	510	0.22017	650	0.18049	790	0.00308
375	0.00156	515	0.22992	655	0.16252	795	0.00265
380	0.00197	520	0.23729	660	0.14523	800	0.00231
385	0.00232	525	0.24365	665	0.12874		
390	0.00248	530	0.24907	670	0.11325		
395	0.00253	535	0.25557	675	0.09930		
400	0.00259	540	0.26200	680	0.08657		
405	0.00319	545	0.26916	685	0.07496		
410	0.00562	550	0.27691	690	0.06497		
415	0.01214	555	0.28529	695	0.05594		
420	0.02604	560	0.29444	700	0.04802		
425	0.05095	565	0.30332	705	0.04113		
430	0.09307	570	0.31224	710	0.03533		
435	0.15575	575	0.32056	715	0.03036		
440	0.22368	580	0.32790	720	0.02609		
445	0.29754	585	0.33479	725	0.02239		
450	0.35558	590	0.34016	730	0.01908		
455	0.28669	595	0.34240	735	0.01631		
460	0.18941	600	0.34123	740	0.01389		
465	0.14827	605	0.33637	745	0.01192		
470	0.11894	610	0.32731	750	0.01024		
475	0.09994	615	0.31368	755	0.00881		
480	0.10340	620	0.29690	760	0.00757		
485	0.11913	625	0.27781	765	0.00649		

**IES TM-30-18 Color Rendition Report**



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

$x$  0.3776  
 $y$  0.3770  
 $u'$  0.2231  
 $v'$  0.5013

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 L20015.  
Dialight unit model number F1x-4FN2-Exxx-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 1.5021 (A)  
Input Power: 178.9 (W)  
Power Factor: 0.9938

### Photometric measurements:

Absolute Luminous Flux: 19656.4 (lumens)  
Luminous Efficacy: 109.9 (lumens/W)

### Intensity Summary:

#### Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	2754	2763	2767	2825	2754	
5.00	3400	3169	2751	2498	2392	290
15.00	6617	4654	2930	2196	1969	1107
25.00	12190	5921	3459	1921	1443	2626
35.00	15030	5840	3997	1728	1378	4129
45.00	23573	6272	4127	1680	1049	7128
55.00	9376	8926	3886	1401	860	4464
65.00	2881	2255	1382	579	672	1625
75.00	1031	303	194	180	735	673
85.00	102	29	23	26	35	30
90.00	7	2	1	1	1	

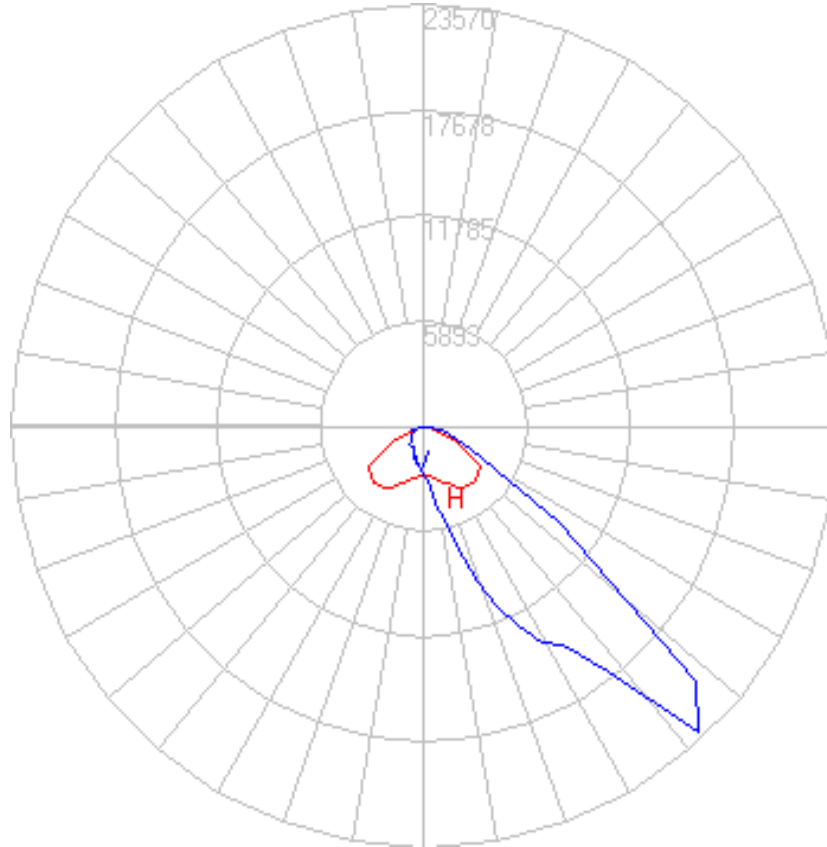
#### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	3657.69	18.61	18.61
0 to 40	7202.65	36.64	36.64
0 to 60	17373.24	88.38	88.38
0 to 90	19656.36	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	19656.36	100.00	100.00

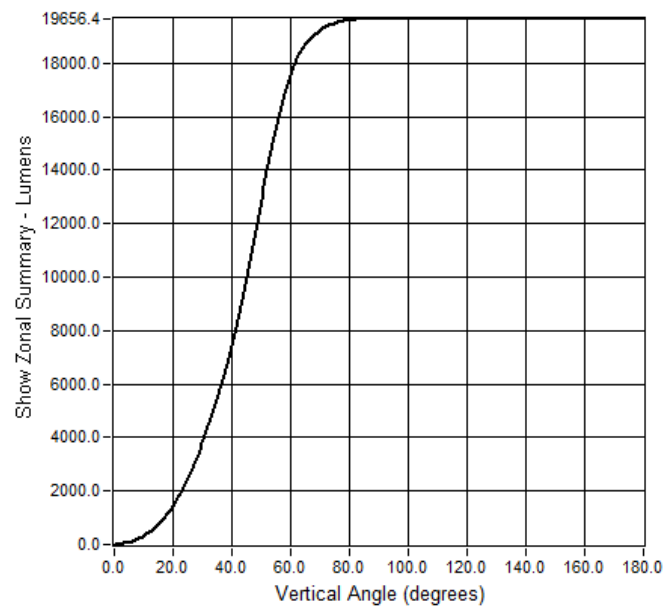
## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:



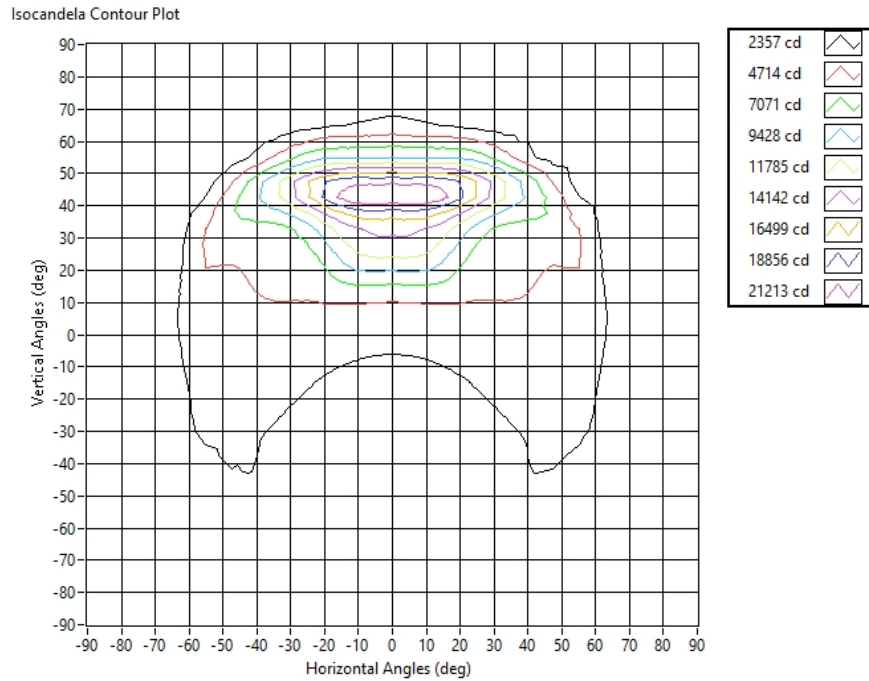
Zonal Flux Graph



## 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	7.28	9.33	696.0
4	14.56	18.65	174.0
6	21.84	27.98	77.3
8	29.13	37.30	43.5
10	36.41	46.63	27.8
12	43.69	55.95	19.3
14	50.97	65.28	14.2
16	58.25	74.60	10.9
18	65.53	83.93	8.6
20	72.82	93.25	7.0



**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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 Approved Signatory