

# Test Report

Report Number: L21036

Date: Apr 9, 2021

Issued by:

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

Test of one F2 - Flood Light

Unit manufacturer: Dialight Corporation  
Unit model number: F2x-4FN2-Nxxx-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 29, 2021 through January 29, 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

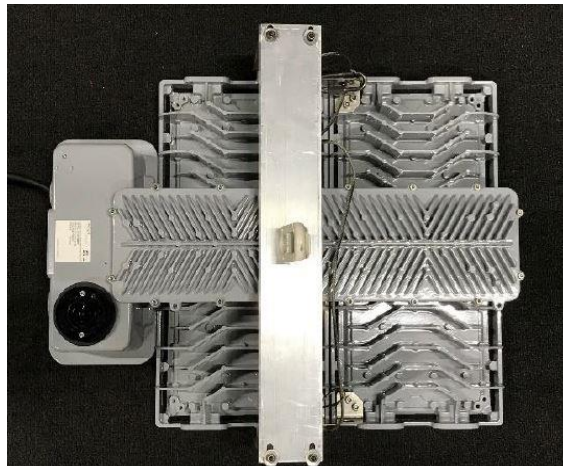
**Description of sample:**

Sample Number: L21036  
Manufacturer: Dialight Corporation  
Product Name: PC Window, Asym Type IV, 80 CRI NW, 120-277V, 60K  
Description: F2 - Flood Light  
Model Number: F2x-4FN2-Nxxx-xxx

## Report Summary

Sample number L21036  
Dialight unit model number F2x-4FN2-Nxxx-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	49675 (lumens)	49318 (lumens)
Electrical Power:	511.6 (W)	502.0 (W)
Luminous Efficacy:	97.1 (lumens/W)	98.25 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 511.6 (W)  
 Power Factor (120VAC): 0.996489  
 Current ATHD % (120VAC): 4.73493  
 Input Power (277VAC): 483.6 (W)  
 Power Factor (277VAC): 0.9715  
 Current ATHD % (277VAC): 11.64

### Color Measurements:

Correlated Color Temperature (CCT): 4193  
 Color Rendering Index (CRI): 84.0908  
 Chromaticity Coordinate (x): 0.373  
 Chromaticity Coordinate (y): 0.373  
 Chromaticity Coordinate (u'): 0.222  
 Chromaticity Coordinate (v'): 0.332  
 DUV: 0.0006

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21036.

Dialight unit model number F2x-4FN2-Nxxx-xxx

### Test Conditions:

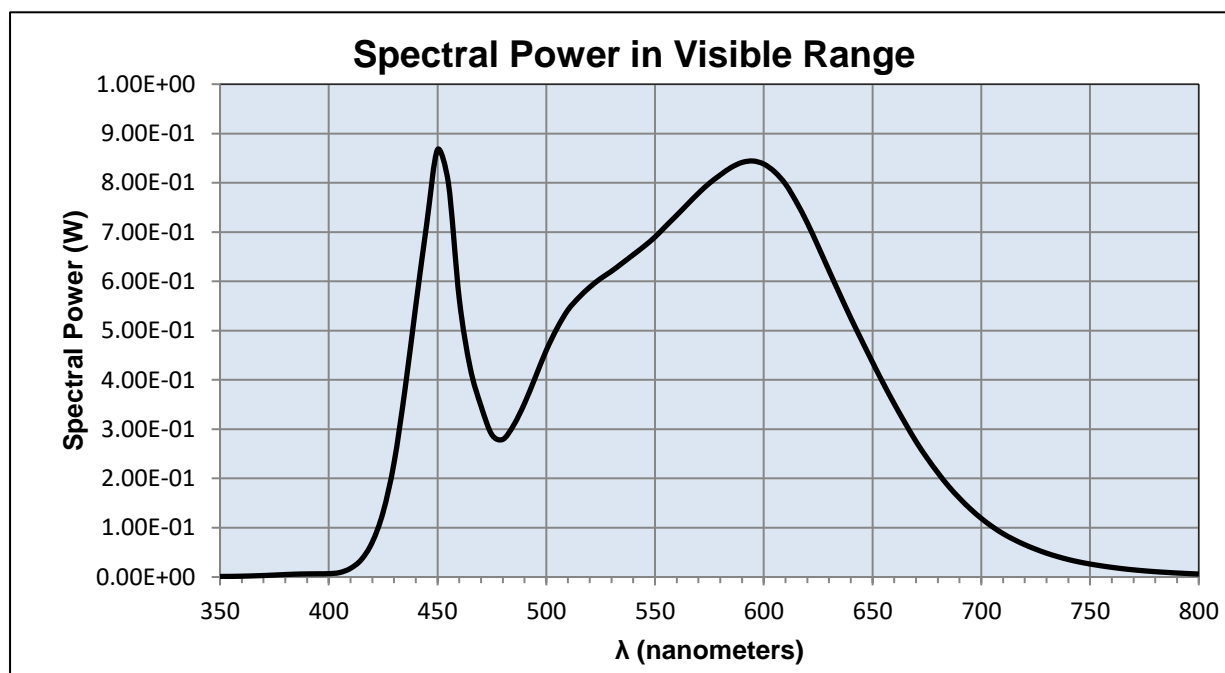
Ambient Temperature: 25 ± 1 (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
 Input Current: 4.25516 (A)  
 Input Power: 511.6 (W)  
 Input Power Factor: 0.996489  
 Current ATHD: 4.73493 (%)

### Photometric measurements:

Luminous Flux: 49675.48 (lumens)  
 Luminous Efficacy: 97.1 (lumens/W)  
 Correlated Color Temperature (CCT): 4193 (K)  
 CRI -Ra: 84.0908  
 CRI -R9: 11.5126  
 DUV: 0.0006  
 CIE Coordinate (x): 0.373  
 CIE Coordinate (y): 0.373  
 CIE Coordinate (u'): 0.222  
 CIE Coordinate (v'): 0.332  
 TM30\_Rf: 83.8  
 TM30\_Rg: 96.2  
 TM30\_Rcs\_hue1: -11.27 %



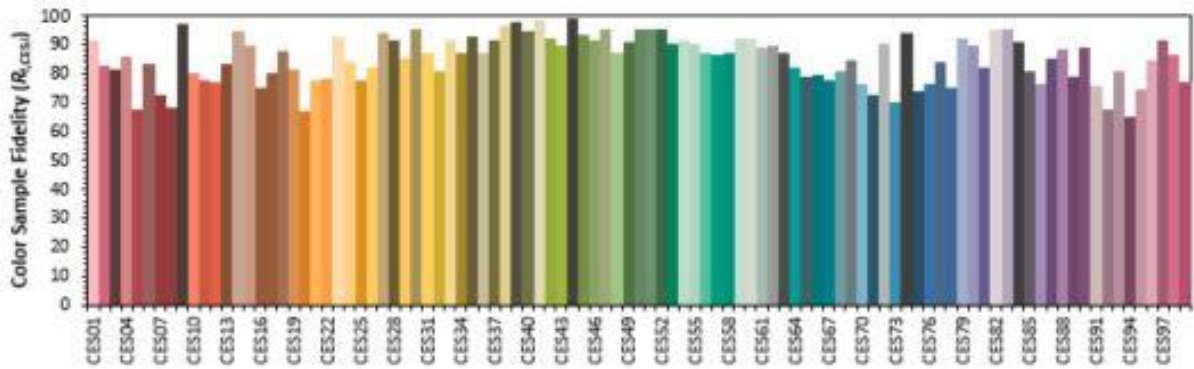
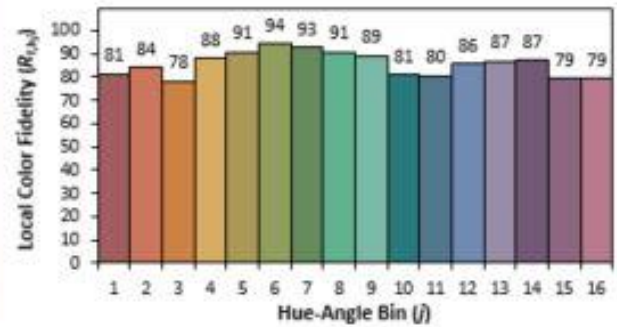
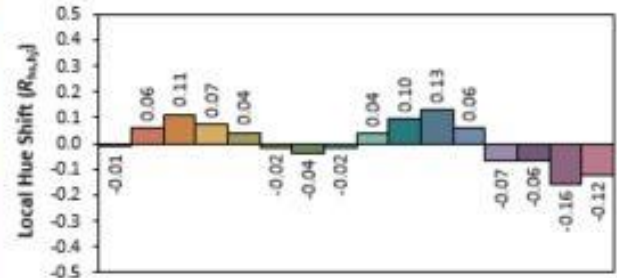
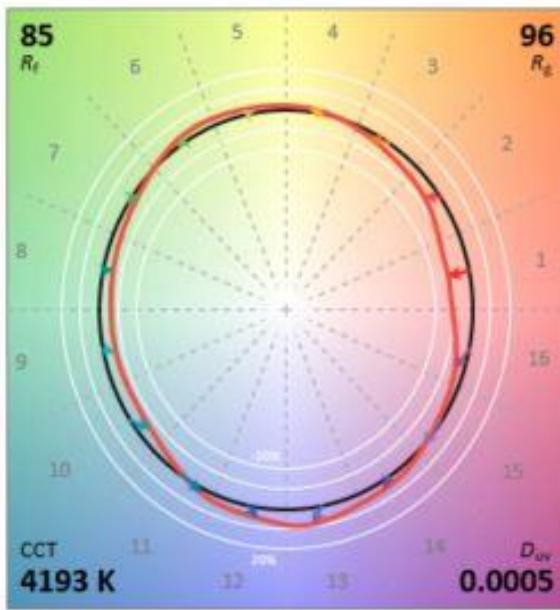
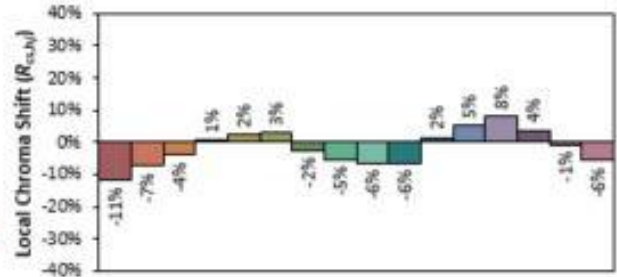
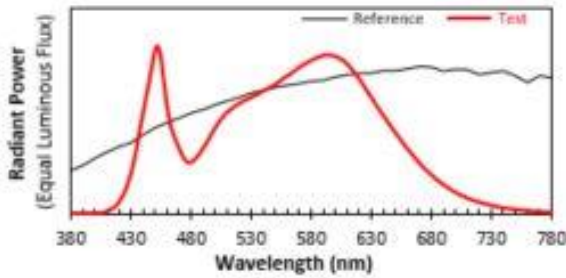
## Test Results: Integrating Sphere

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	0.00118	490	0.35226	630	0.62177	770	0.01453
355	0.00131	495	0.40565	635	0.57327	775	0.01255
360	0.00171	500	0.45990	640	0.52567	780	0.01084
365	0.00231	505	0.50525	645	0.48045	785	0.00943
370	0.00307	510	0.54215	650	0.43585	790	0.00817
375	0.00401	515	0.56730	655	0.39255	795	0.00709
380	0.00505	520	0.58824	660	0.35132	800	0.00612
385	0.00590	525	0.60572	665	0.31238		
390	0.00636	530	0.62054	670	0.27506		
395	0.00657	535	0.63721	675	0.24195		
400	0.00688	540	0.65404	680	0.21178		
405	0.00908	545	0.67118	685	0.18396		
410	0.01765	550	0.69000	690	0.15988		
415	0.03551	555	0.71225	695	0.13806		
420	0.07070	560	0.73415	700	0.11908		
425	0.13196	565	0.75676	705	0.10242		
430	0.23153	570	0.77897	710	0.08802		
435	0.37932	575	0.79906	715	0.07605		
440	0.55038	580	0.81586	720	0.06560		
445	0.71544	585	0.83111	725	0.05653		
450	0.86727	590	0.84124	730	0.04840		
455	0.79908	595	0.84417	735	0.04156		
460	0.56403	600	0.83798	740	0.03552		
465	0.42514	605	0.82218	745	0.03056		
470	0.34707	610	0.79724	750	0.02641		
475	0.28865	615	0.76084	755	0.02281		
480	0.27923	620	0.71879	760	0.01967		
485	0.30817	625	0.67101	765	0.01686		

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



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

$x$  0.3726  
 $y$  0.3728  
 $u'$  0.2215  
 $v'$  0.4987

CIE 13.3-1995  
(CRI)  
 $R_a$  84  
 $R_g$  11

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L21036.  
Dialight unit model number F2x-4FN2-Nxxx-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 4.2169 (A)  
Input Power: 502.0 (W)  
Power Factor: 0.9961

### Photometric measurements:

Absolute Luminous Flux: 49318.3 (lumens)  
Luminous Efficacy: 98.2 (lumens/W)

### Intensity Summary:

#### Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	7841	7820	7970	7993	7841	
5.00	10362	9207	7737	6717	6417	830
15.00	22054	15004	7895	5638	5247	3430
25.00	35349	21574	8843	4949	3832	7714
35.00	46170	18799	10248	4369	3127	12302
45.00	49770	20263	10904	4065	2739	16119
55.00	13827	27586	10450	3764	2209	9184
65.00	5310	6885	8812	2402	1765	4440
75.00	1684	774	798	763	1849	1477
85.00	42	94	179	165	434	118
90.00	3	13	43	53	30	

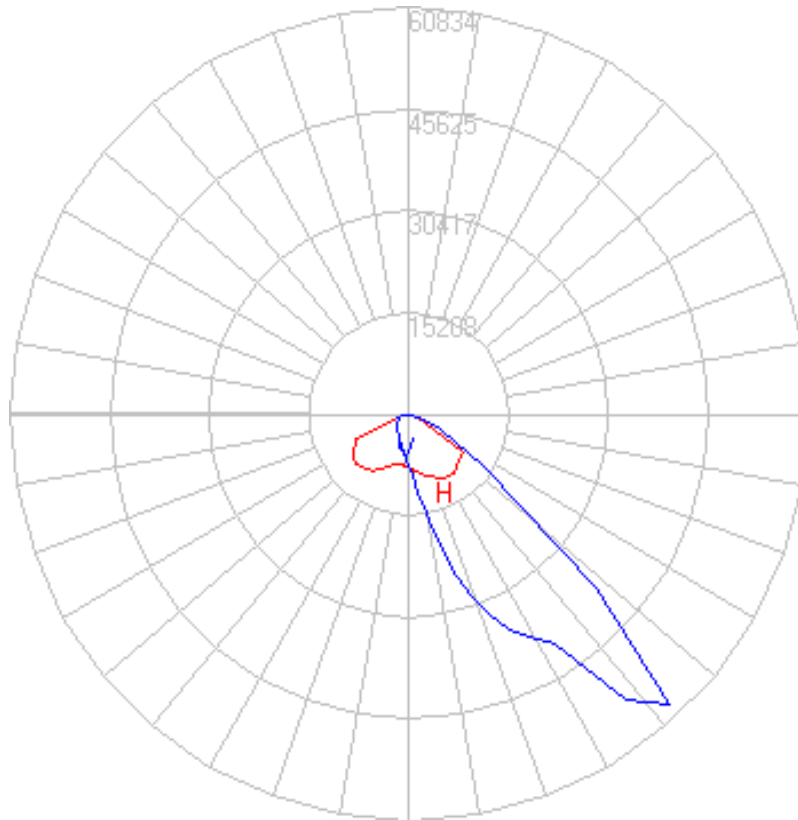
#### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	10374.28	21.04	21.04
0 to 40	20220.62	41.00	41.00
0 to 60	44297.69	89.82	89.82
0 to 90	49318.33	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	49318.33	100.00	100.00

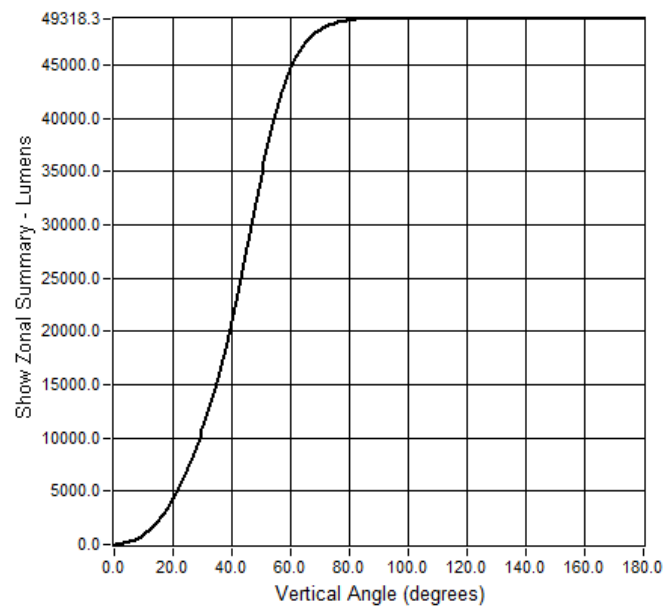
## Test Results: Goniometer

Results continued from previous page.

**Polar Plot:**



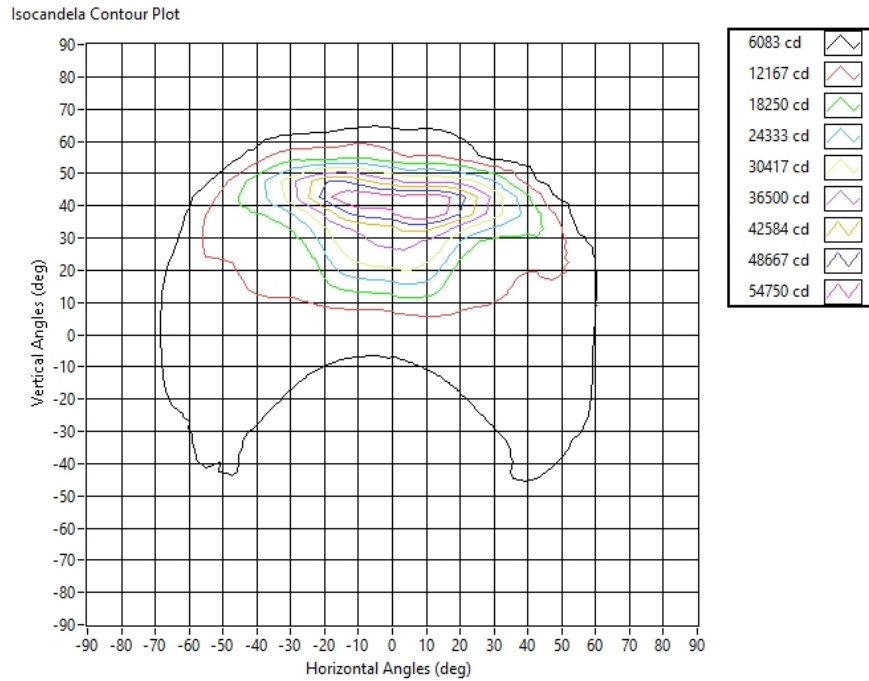
Zonal Flux Graph



## 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	5.96	9.35	1980.6
4	11.93	18.69	495.2
6	17.89	28.04	220.1
8	23.85	37.38	123.8
10	29.81	46.73	79.2
12	35.78	56.07	55.0
14	41.74	65.42	40.4
16	47.70	74.76	30.9
18	53.67	84.11	24.5
20	59.63	93.45	19.8



**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.

Test Report Issued By:

Richard Huegi  
 Dialight Optics Laboratory  
 Senior Optical Engineering Technician  
 Lighting Division

Test Report Reviewed and Approved By:

Vishnu Shastry  
 Dialight Optics Laboratory  
 Optical Engineer  
 Approved Signatory