

# Test Report

Report Number: L21007

Date: Jan 20, 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-N4B2-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 4, 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

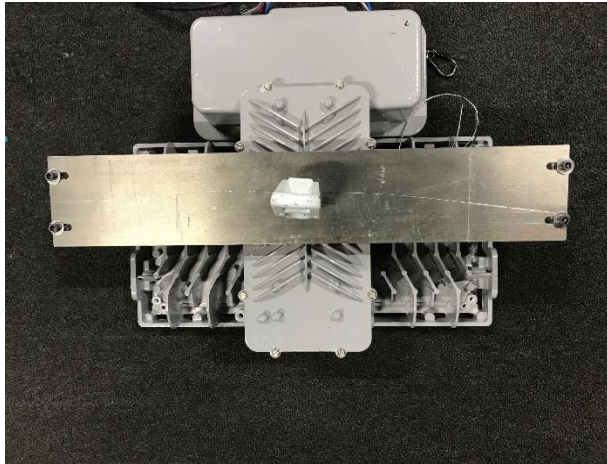
**Description of sample:**

Sample Number: L21007  
Manufacturer: Dialight Corporation  
Product Name: No Window, NEMA4, 70 CRI CW, 100-277V, 30K  
Description: F1 - Flood Light  
Model Number: F1x-N4B2-Fxxx-xxx

## Report Summary

Sample number L21007  
Dialight unit model number F1x-N4B2-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:	31595 (lumens)	31814 (lumens)
Electrical Power:	242.2 (W)	240.0 (W)
Luminous Efficacy:	130.5 (lumens/W)	132.5 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 242.2 (W)  
Power Factor (120VAC): 0.9956  
Current ATHD % (120VAC): 5.03  
Input Power (277VAC): 231.9 (W)  
Power Factor (277VAC): 0.95674  
Current ATHD % (277VAC): 10.15

### Color Measurements:

Correlated Color Temperature (CCT): 5111  
Color Rendering Index (CRI): 71.3108  
Chromaticity Coordinate (x): 0.342  
Chromaticity Coordinate (y): 0.349  
Chromaticity Coordinate (u'): 0.210  
Chromaticity Coordinate (v'): 0.322  
DUV: 0.0002

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21007.

Dialight unit model number F1x-N4B2-Fxxx-xxx

### Test Conditions:

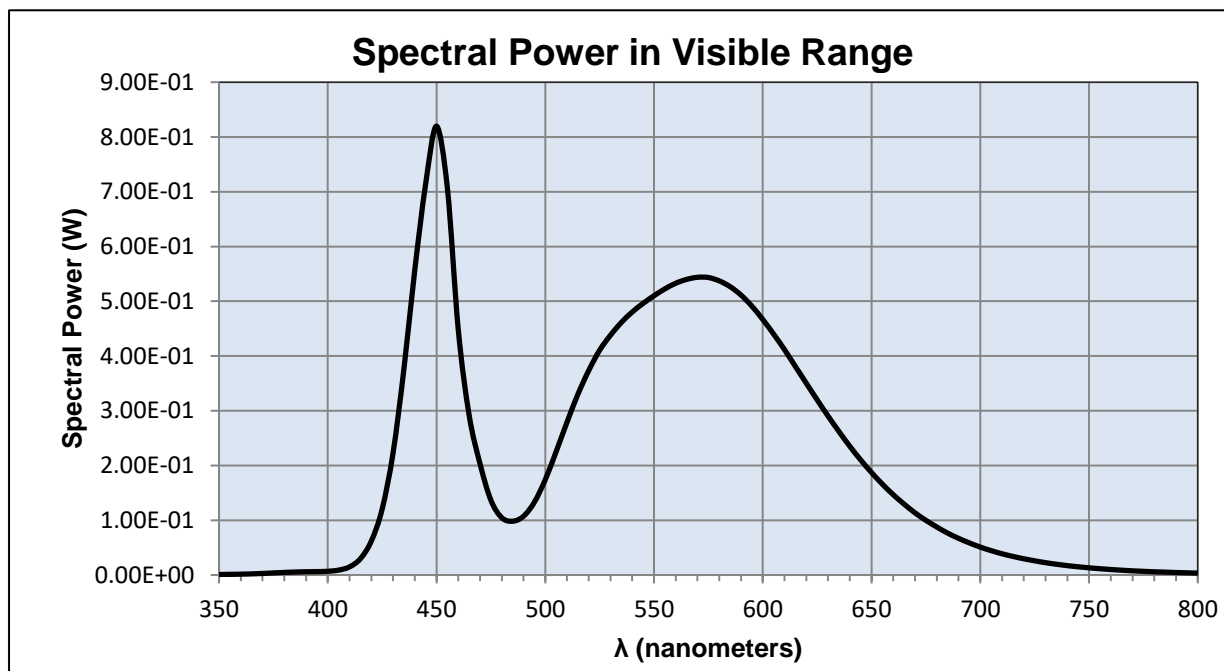
Ambient Temperature: 25 ± 1 (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
 Input Current: 2.036 (A)  
 Input Power: 242.2 (W)  
 Input Power Factor: 0.9956  
 Current ATHD: 5.03 (%)

### Photometric measurements:

Luminous Flux: 31595.34 (lumens)  
 Luminous Efficacy: 130.5 (lumens/W)  
 Correlated Color Temperature (CCT): 5111 (K)  
 CRI -Ra: 71.3108  
 CRI -R9: -33.0358  
 DUV: 0.0002  
 CIE Coordinate (x): 0.342  
 CIE Coordinate (y): 0.349  
 CIE Coordinate (u'): 0.210  
 CIE Coordinate (v'): 0.322  
 TM30\_Rf: 68.9  
 TM30\_Rg: 93.5  
 TM30\_Rcs\_hue1: -18.34 %



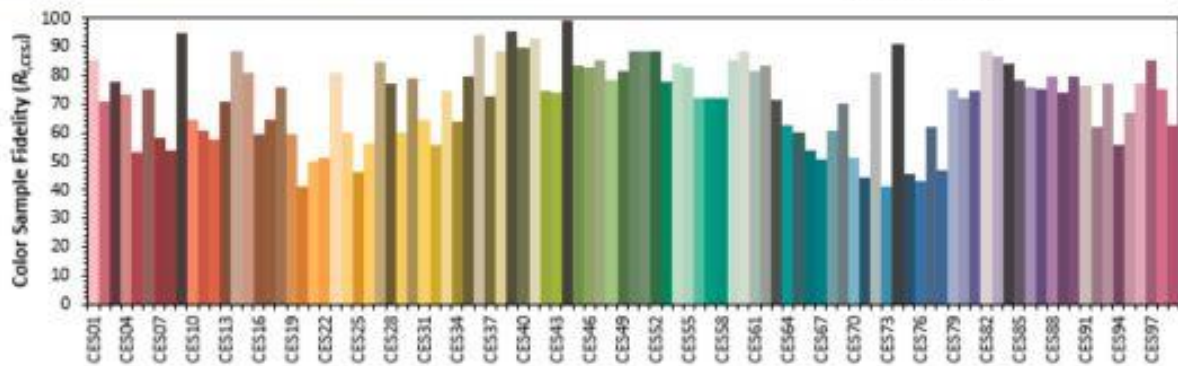
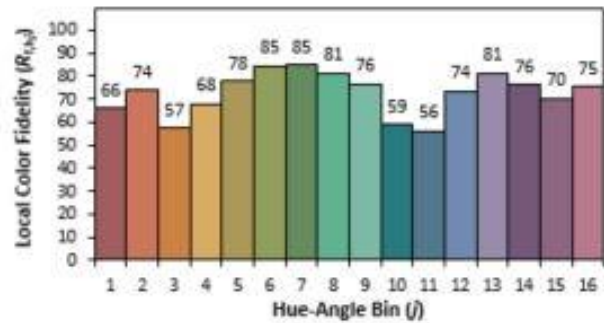
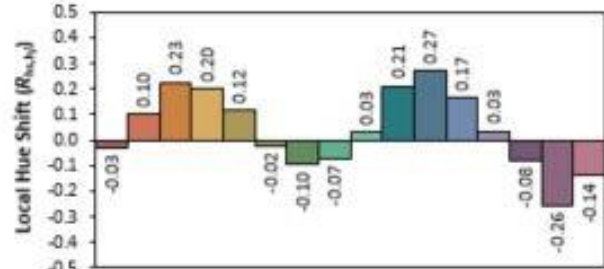
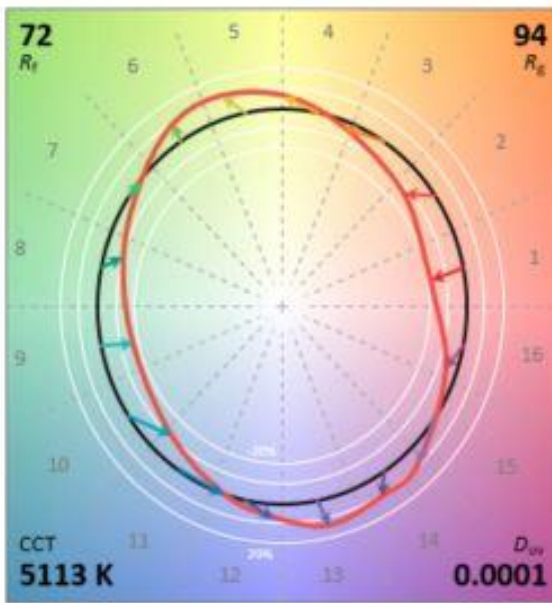
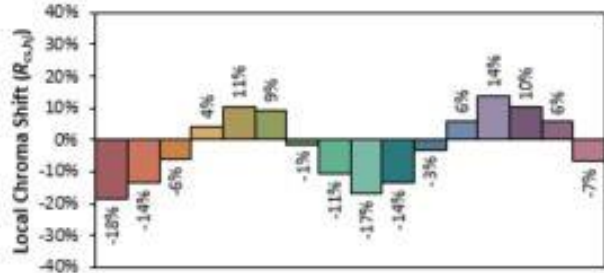
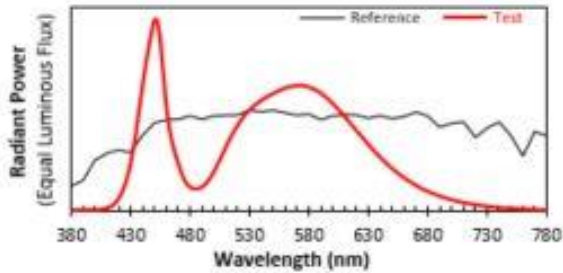
## Test Results: Integrating Sphere

Results continued from previous page.

### Tabulated Spectral Power in Visible Range:

$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)
350	0.00098	490	0.10739	630	0.29036	770	0.00770
355	0.00124	495	0.13309	635	0.26218	775	0.00677
360	0.00159	500	0.17412	640	0.23523	780	0.00595
365	0.00210	505	0.22543	645	0.21026	785	0.00525
370	0.00286	510	0.27921	650	0.18722	790	0.00459
375	0.00382	515	0.33005	655	0.16594	795	0.00402
380	0.00478	520	0.37360	660	0.14663	800	0.00355
385	0.00548	525	0.41055	665	0.12943		
390	0.00597	530	0.43802	670	0.11356		
395	0.00624	535	0.46138	675	0.09986		
400	0.00685	540	0.48034	680	0.08777		
405	0.00898	545	0.49610	685	0.07655		
410	0.01490	550	0.51005	690	0.06701		
415	0.02982	555	0.52257	695	0.05864		
420	0.06188	560	0.53288	700	0.05101		
425	0.12042	565	0.53987	705	0.04454		
430	0.22271	570	0.54369	710	0.03880		
435	0.37608	575	0.54330	715	0.03396		
440	0.55676	580	0.53719	720	0.02970		
445	0.71404	585	0.52658	725	0.02597		
450	0.81973	590	0.51125	730	0.02256		
455	0.70617	595	0.49102	735	0.01973		
460	0.44767	600	0.46674	740	0.01713		
465	0.29191	605	0.43996	745	0.01505		
470	0.20321	610	0.41154	750	0.01316		
475	0.13658	615	0.38082	755	0.01153		
480	0.10470	620	0.35039	760	0.01008		
485	0.09827	625	0.31994	765	0.00880		

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



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

$x$  0.3420  
 $y$  0.3494  
 $u'$  0.2102  
 $v'$  0.4831

CIE 13.3-1995	
(CRI)	
$R_a$	71
$R_g$	-33

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L21007.  
Dialight unit model number F1x-N4B2-Fxxx-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 2.0138 (A)  
Input Power: 240.0 (W)  
Power Factor: 0.9952

### Photometric measurements:

Absolute Luminous Flux: 31814 (lumens)  
Luminous Efficacy: 132.5 (lumens/W)

### Intensity Summary:

#### Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	74645	75076	75415	75642	74645	
5.00	71870	68880	66485	67740	68152	7048
15.00	57320	51661	46290	46989	49863	14630
25.00	21745	13010	6505	9296	10682	6357
35.00	2064	1196	1040	1180	1766	1020
45.00	1003	628	591	605	890	635
55.00	657	497	465	486	611	518
65.00	492	414	365	399	450	439
75.00	318	242	214	225	272	285
85.00	76	45	30	37	47	29
90.00	6	1	2	2	2	

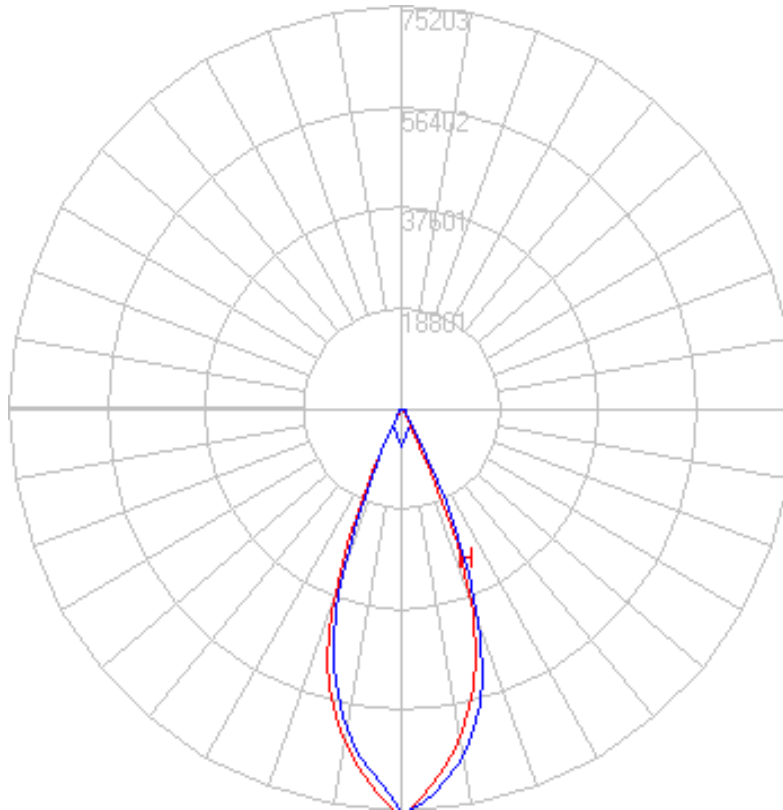
#### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	28858.89	91.04	91.04
0 to 40	29872.92	94.24	94.24
0 to 60	30930.97	97.58	97.58
0 to 90	31699.47	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	31699.47	100.00	100.00

## Test Results: Goniometer

Results continued from previous page.

**Polar Plot:**




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**Characteristics**

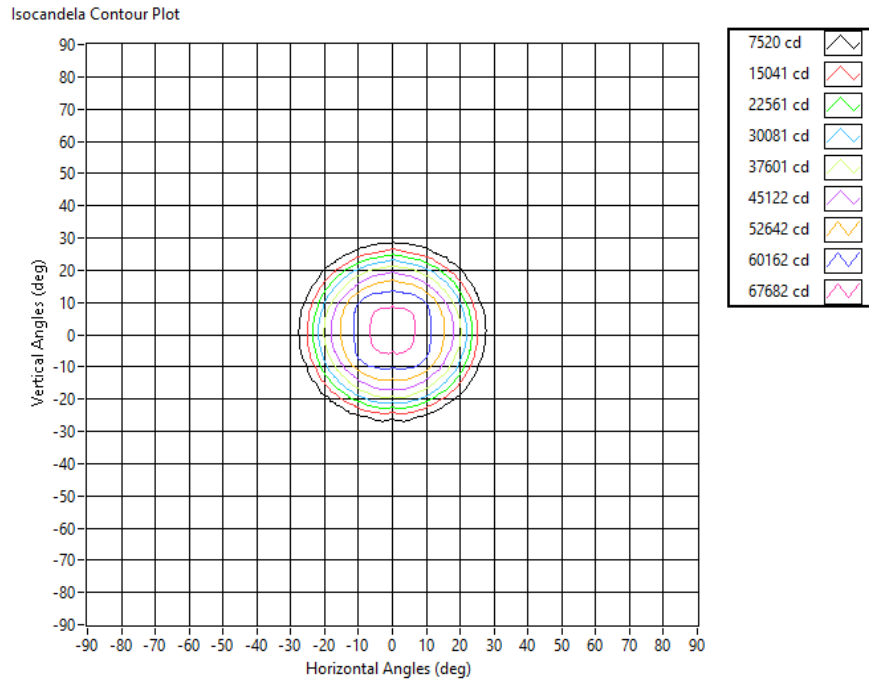
NEMA Type	4 H x 4 V
Maximum Candela	75202.75
Maximum Candela Angle	0 H 0 V
Horizontal Beam Angle (50%)	40.4
Vertical Beam Angle (50%)	40.5
Horizontal Field Angle (10%)	55.2
Vertical Field Angle (10%)	54.9
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	21010
Beam Efficiency	N.A.
Field Lumens	28217
Field Efficiency	N.A.
Spill Lumens	3597
Luminaire Lumens	31814
Total Efficiency	N.A.
Total Luminaire Watts	240.1
Ballast Factor	1.00

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## 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	1.51	1.52	18800.7
4	3.02	3.03	4700.2
6	4.53	4.55	2089.0
8	6.03	6.06	1175.0
10	7.54	7.58	752.0
12	9.05	9.09	522.2
14	10.56	10.61	383.7
16	12.07	12.12	293.8
18	13.58	13.64	232.1
20	15.08	15.16	188.0



**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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 Dialight Optics Laboratory  
 Optical Engineer  
 Approved Signatory