

Test Report

Report Number: L21019

Date: Apr 5, 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-4FN5-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 22, 2021 through February 11, 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: L21019

Manufacturer: Dialight Corporation

Product Name: PC Window, Asymmetric Forward Throw (Type IV), 80 CRI NW, 347-480V, 24K

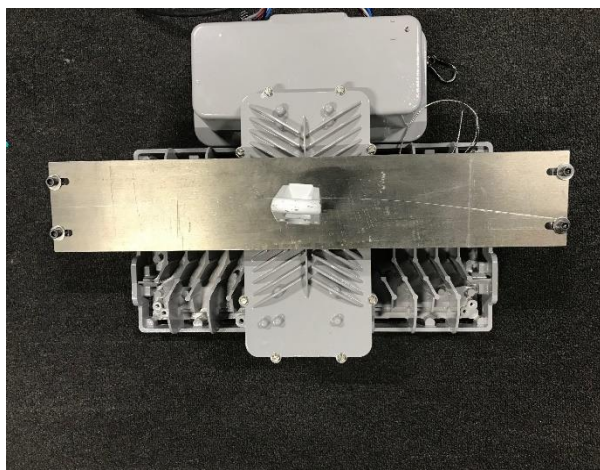
Description: F1 - Flood Light

Model Number: F1x-4FN5-Exxx-xxx

Report Summary

Sample number L21019
Dialight unit model number F1x-4FN5-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:	20223 (lumens)	19622 (lumens)
Electrical Power:	178.4 (W)	177.8 (W)
Luminous Efficacy:	113.4 (lumens/W)	110.4 (lumens/W)

Electrical Measurements:

Input Power (347VAC): 178.4 (W)
 Power Factor (347VAC): 0.991369
 Current ATHD % (347VAC): 8.8727
 Input Power (480VAC): 178.2 (W)
 Power Factor (480VAC): 0.9779
 Current ATHD % (480VAC): 10.6475

Color Measurements:

Correlated Color Temperature (CCT): 4085
 Color Rendering Index (CRI): 84.262
 Chromaticity Coordinate (x): 0.377
 Chromaticity Coordinate (y): 0.377
 Chromaticity Coordinate (u'): 0.223
 Chromaticity Coordinate (v'): 0.334
 DUV: 0.0011

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21019.

Dialight unit model number F1x-4FN5-Exxx-xxx

Test Conditions:

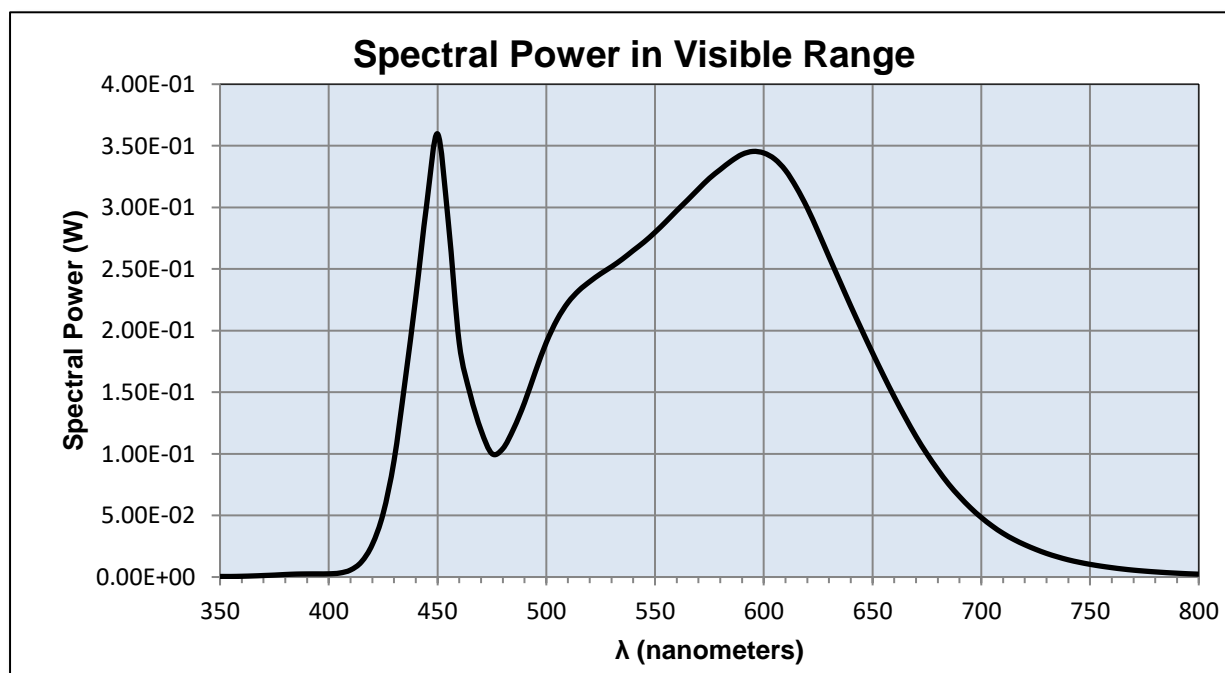
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 347 (VAC)
Input Current: 0.518072 (A)
Input Power: 178.4 (W)
Input Power Factor: 0.991369
Current ATHD: 8.8727 (%)

Photometric measurements:

Luminous Flux: 20222.81 (lumens)
Luminous Efficacy: 113.4 (lumens/W)
Correlated Color Temperature (CCT): 4085 (K)
CRI -Ra: 84.262
CRI -R9: 12.3817
DUV: 0.0011
CIE Coordinate (x): 0.377
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 %



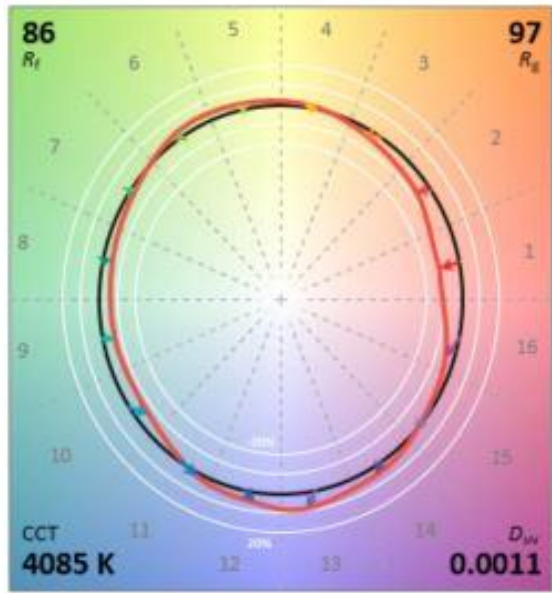
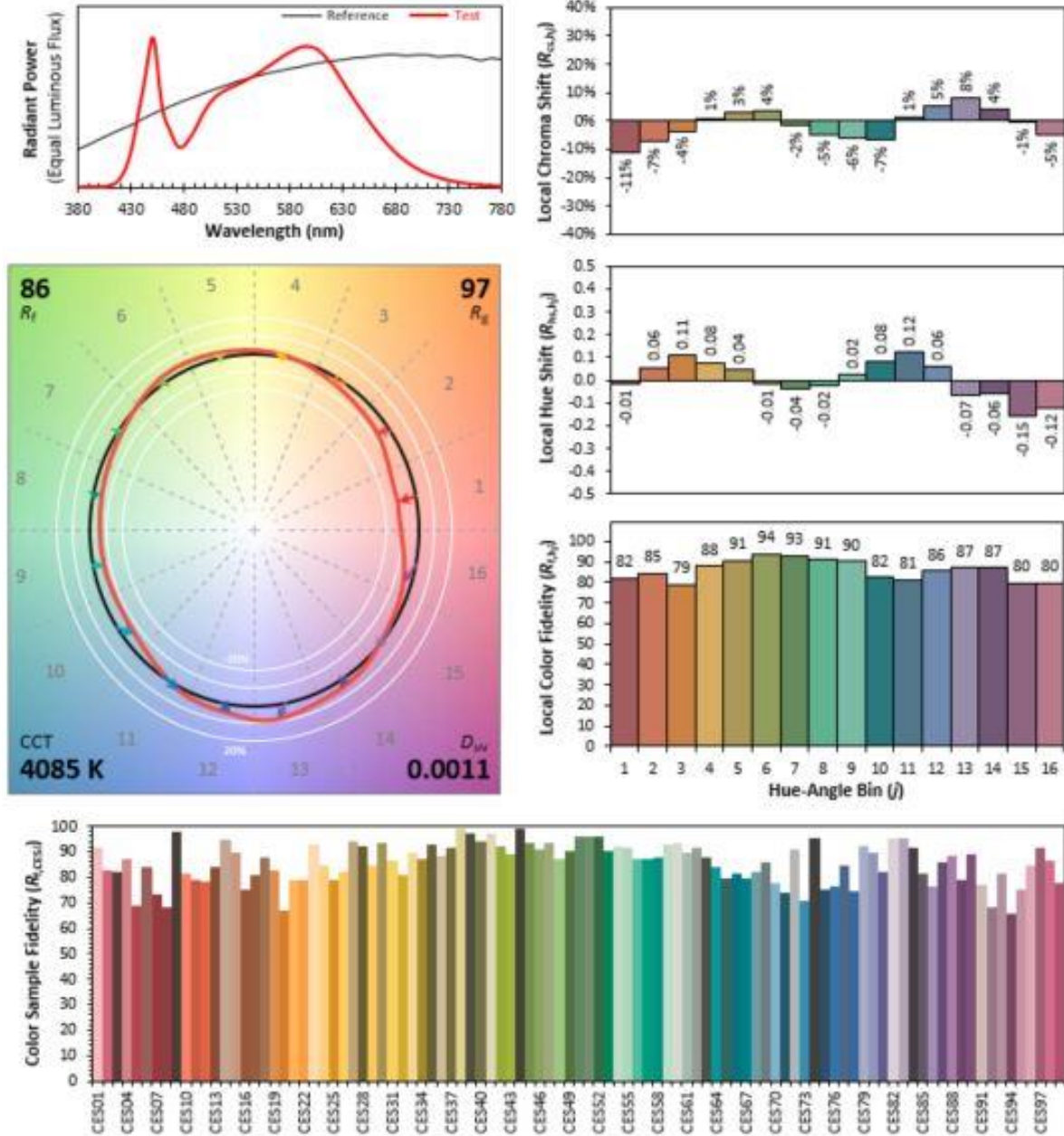
Test Results: Integrating Sphere

Results continued from previous page.

Tabulated Spectral Power in Visible Range:

$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)
350	0.00047	490	0.14152	630	0.25987	770	0.00559
355	0.00044	495	0.16672	635	0.23990	775	0.00481
360	0.00062	500	0.19036	640	0.21991	780	0.00416
365	0.00087	505	0.20904	645	0.20076	785	0.00360
370	0.00122	510	0.22285	650	0.18197	790	0.00310
375	0.00157	515	0.23258	655	0.16376	795	0.00267
380	0.00205	520	0.23979	660	0.14622	800	0.00232
385	0.00239	525	0.24617	665	0.12971		
390	0.00252	530	0.25184	670	0.11409		
395	0.00255	535	0.25808	675	0.09998		
400	0.00260	540	0.26505	680	0.08718		
405	0.00324	545	0.27194	685	0.07538		
410	0.00572	550	0.27981	690	0.06532		
415	0.01224	555	0.28837	695	0.05622		
420	0.02635	560	0.29740	700	0.04835		
425	0.05160	565	0.30607	705	0.04143		
430	0.09441	570	0.31498	710	0.03546		
435	0.15809	575	0.32361	715	0.03047		
440	0.22708	580	0.33075	720	0.02621		
445	0.30215	585	0.33758	725	0.02249		
450	0.35972	590	0.34304	730	0.01917		
455	0.28715	595	0.34543	735	0.01640		
460	0.18961	600	0.34418	740	0.01395		
465	0.14857	605	0.33929	745	0.01197		
470	0.11918	610	0.33005	750	0.01029		
475	0.10019	615	0.31622	755	0.00886		
480	0.10413	620	0.29964	760	0.00760		
485	0.12039	625	0.28027	765	0.00650		

IES TM-30-18 Color Rendition Report



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

x 0.3775
y 0.3771
u' 0.2230
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 L21019.
Dialight unit model number F1x-4FN5-Exxx-xxx

Electrical Measurements:

Input Voltage: 347 (VAC)
Input current: 0.51748 (A)
Input Power: 177.8 (W)
Power Factor: 0.9912

Photometric measurements:

Absolute Luminous Flux: 19622.4 (lumens)
Luminous Efficacy: 110.4 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	2845	2853	2848	2904	2845	
5.00	3552	3329	2874	2567	2432	300
15.00	7086	5239	3148	2270	2010	1183
25.00	12698	7139	3737	2053	1468	2797
35.00	15855	6713	4274	1932	1346	4391
45.00	22713	8035	4360	1848	1066	7134
55.00	7954	10669	4068	1708	866	4317
65.00	2519	2089	1868	595	675	1556
75.00	891	265	209	203	747	631
85.00	79	28	27	30	67	31
90.00	3	1	1	1	2	

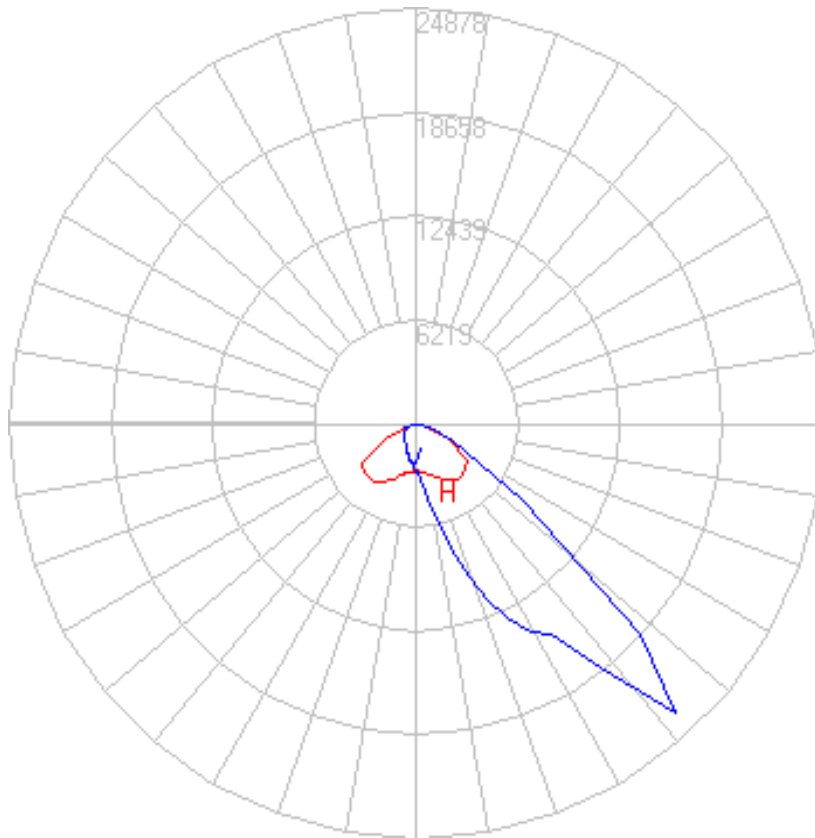
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	3773.09	19.19	19.19
0 to 40	7397.04	37.62	37.62
0 to 60	17475.46	88.88	88.88
0 to 90	19662.44	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	19662.44	100.00	100.00

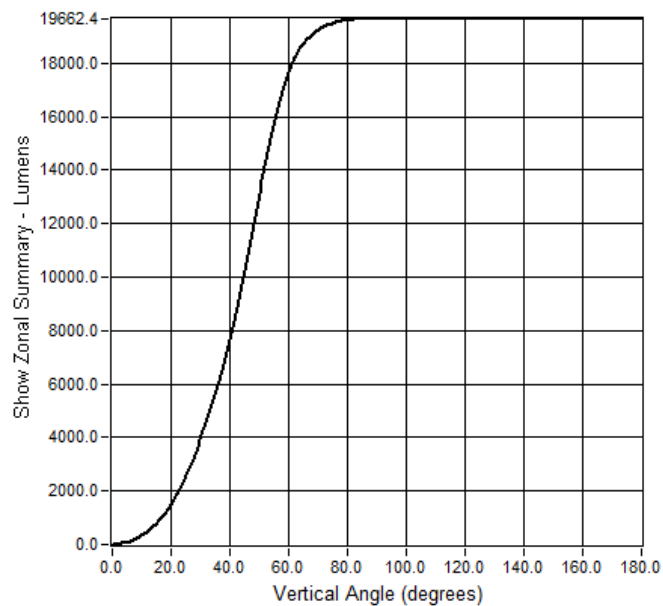
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



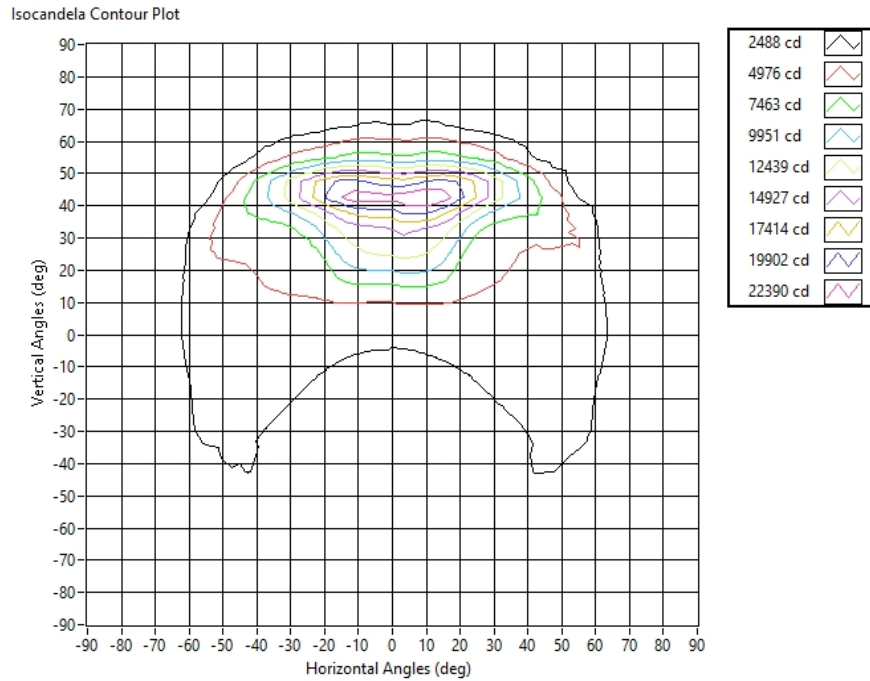
Zonal Flux Graph



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	7.04	8.93	718.4
4	14.09	17.86	179.6
6	21.13	26.79	79.8
8	28.17	35.71	44.9
10	35.21	44.64	28.7
12	42.26	53.57	20.0
14	49.30	62.50	14.7
16	56.34	71.43	11.2
18	63.39	80.36	8.9
20	70.43	89.28	7.2

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