

# Test Report

Report Number: L17020

Date: May 11, 2017

Issued by:

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

Test of one Vigilant Area Light  
Unit manufacturer: Dialight Corporation  
Unit model number: ALF5WN27-XXXXX-N

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:** May 8, 2017 through May 22, 2017

**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

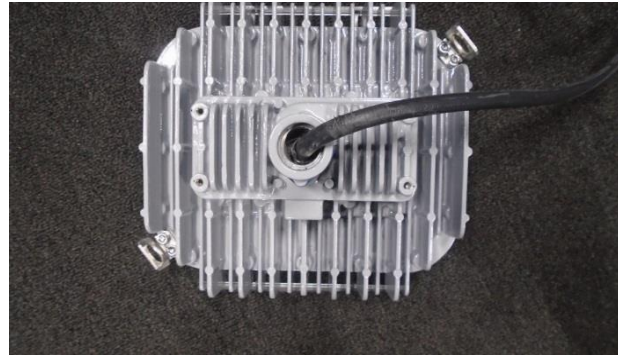
**Description of sample:**

Sample Number: L17020  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Area Light  
Description: Vigilant Area Light  
Model Number: ALF5WN27-XXXXX-N

## Report Summary

Sample number L17020  
Dialight unit model number ALF5WN27-XXXXX-N

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	7067 (lumens)	6836 (lumens)
Electrical Power:	63.6 (W)	63.5 (W)
Luminous Efficacy:	111.1 (lumens/W)	107.6 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 63.6 (W)  
 Power Factor (120VAC): 0.995  
 Current ATHD % (120VAC): 6.429  
 Input Power (277VAC): 61.4 (W)  
 Power Factor (277VAC): 0.926  
 Current ATHD % (277VAC): 11.91

### Color Measurements:

Correlated Color Temperature (CCT): 3977  
 Color Rendering Index (CRI): 84.1  
 Chromaticity Coordinate (x): 0.382  
 Chromaticity Coordinate (y): 0.379  
 Chromaticity Coordinate (u'): 0.225  
 Chromaticity Coordinate (v'): 0.335  
 DUV: 0.00061

### Temperature Measurements:

In Situ LED Source Temperature: 52.3 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L17020.

Dialight unit model number ALF5WN27-XXXXX-N

### Test Conditions:

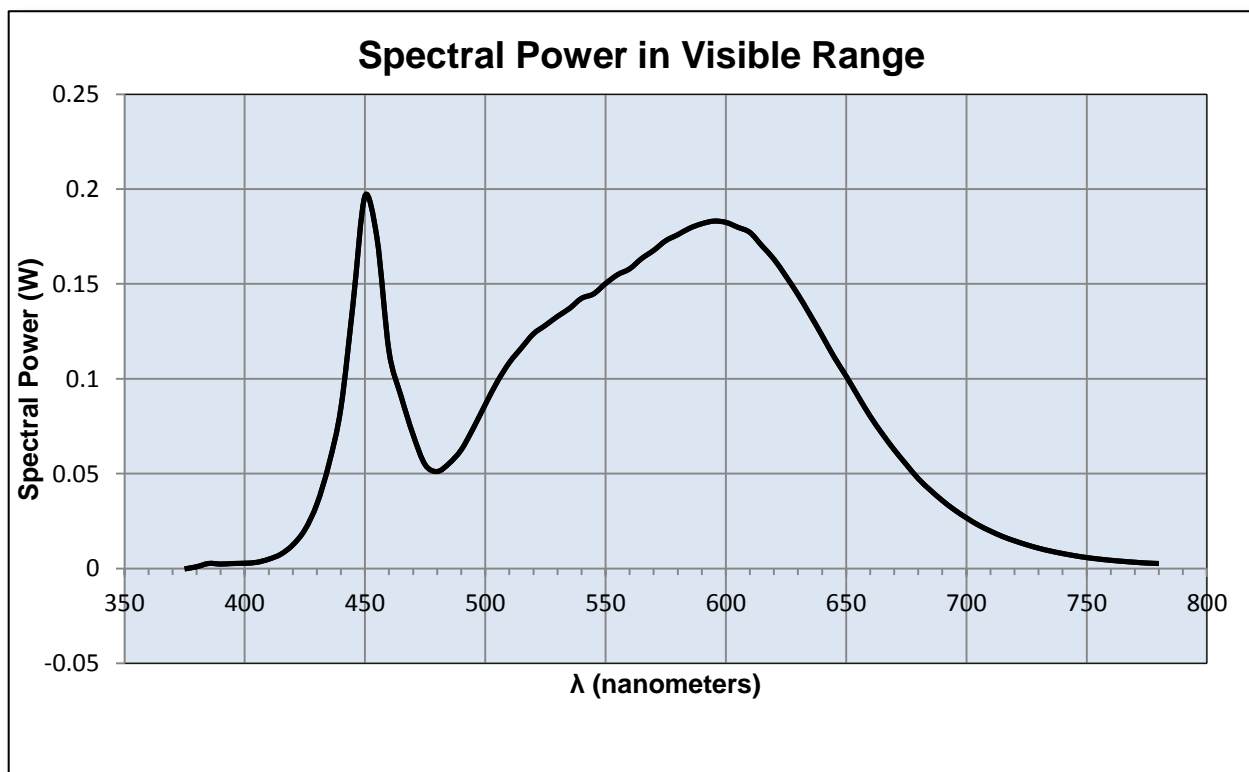
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
 Input Current: 0.533 (A)  
 Input Power: 63.6 (W)  
 Input Power Factor: 0.995  
 Current ATHD: 6.429 (%)

### Photometric measurements:

Luminous Flux: 7067 (lumens)  
 Luminous Efficacy: 111.1 (lumens/W)  
 Correlated Color Temperature (CCT): 3977 (K)  
 CRI -Ra: 84.1  
 CRI -R9: 16.9  
 DUV: 0.00061  
 CIE Coordinate (x): 0.382  
 CIE Coordinate (y): 0.379  
 CIE Coordinate (u'): 0.225  
 CIE Coordinate (v'): 0.335



## 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)
375	0.000	515	0.116	655	0.091
380	0.001	520	0.124	660	0.080
385	0.003	525	0.128	665	0.071
390	0.002	530	0.133	670	0.063
395	0.003	535	0.137	675	0.055
400	0.003	540	0.142	680	0.047
405	0.003	545	0.145	685	0.041
410	0.005	550	0.150	690	0.036
415	0.008	555	0.155	695	0.031
420	0.012	560	0.158	700	0.027
425	0.020	565	0.163	705	0.023
430	0.034	570	0.168	710	0.020
435	0.055	575	0.173	715	0.017
440	0.085	580	0.176	720	0.015
445	0.139	585	0.179	725	0.013
450	0.196	590	0.182	730	0.011
455	0.174	595	0.183	735	0.009
460	0.114	600	0.182	740	0.008
465	0.091	605	0.180	745	0.007
470	0.070	610	0.177	750	0.006
475	0.055	615	0.170	755	0.005
480	0.051	620	0.163	760	0.004
485	0.055	625	0.154	765	0.004
490	0.063	630	0.144	770	0.003
495	0.074	635	0.134	775	0.003
500	0.086	640	0.123	780	0.003
505	0.098	645	0.112		
510	0.109	650	0.101		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L17020.  
Dialight unit model number ALF5WN27-XXXXX-N

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.531 (A)  
Input Power: 63.5 (W)  
Power Factor: 0.995

### Photometric measurements:

Absolute Luminous Flux: 6836 (lumens)  
Luminous Efficacy: 107.6 (lumens/W)

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	1720	1720	1720	1720	1720	
5	1717	1716	1738	1748	1739	64
15	1538	1590	1654	1730	1733	357
25	1429	1524	1541	1515	1515	625
35	1312	1365	1334	1330	1274	803
45	1278	1293	1140	1005	963	889
55	1786	1561	952	727	690	975
65	2683	2368	1197	359	253	1216
75	1894	1950	1231	191	90	1346
85	359	329	289	92	47	514
95	0	0	0	0	0	46
105	0	0	0	0	0	0
115	0	0	0	0	0	0
125	0	0	0	0	0	0
135	0	0	0	0	0	0
145	0	0	0	0	0	0
155	0	0	0	0	0	0
165	0	0	0	0	0	0
175	0	0	0	0	0	0
180	0	0	0	0	0	0

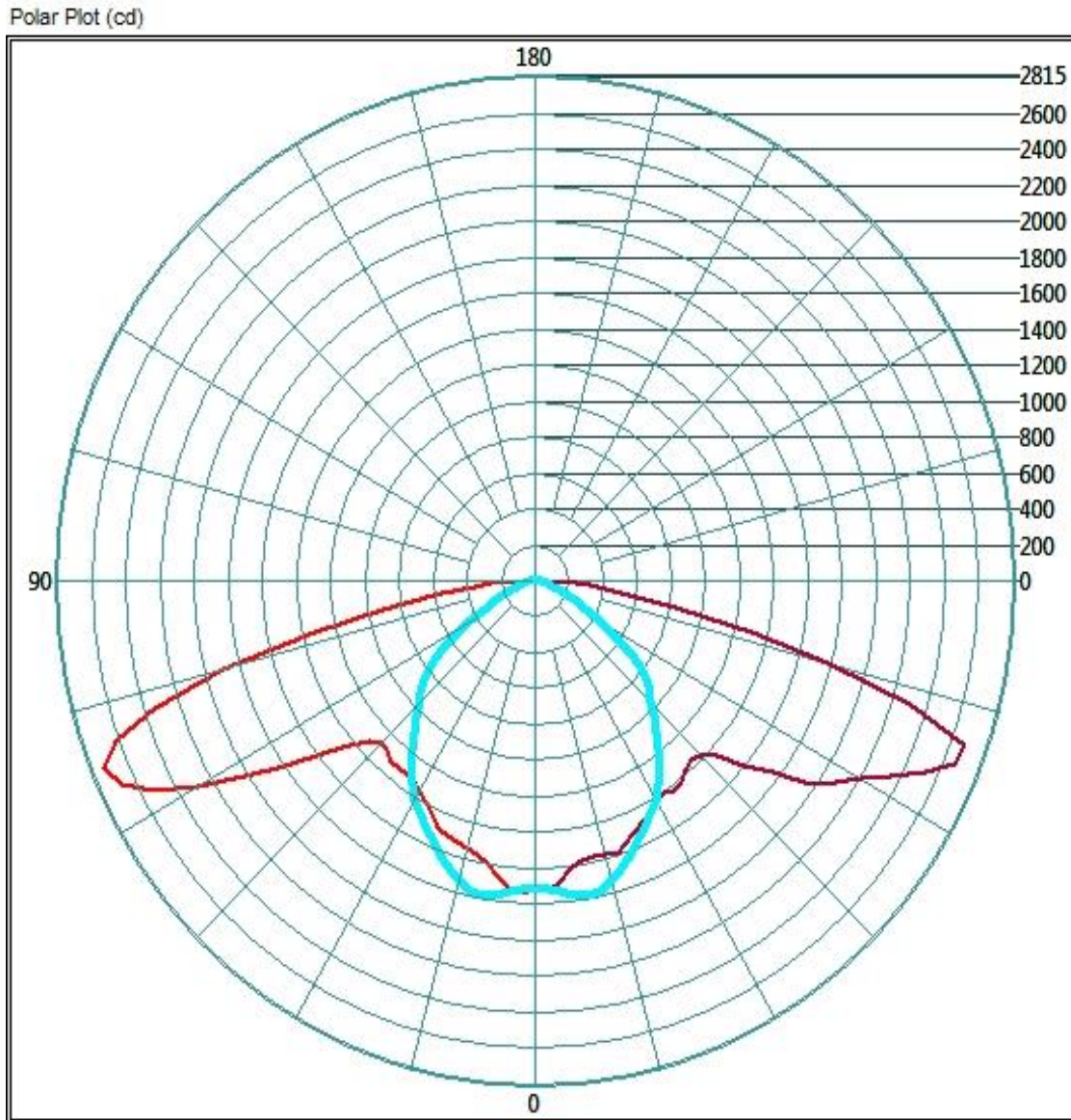
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	1431.11	20.9%
0-40	2289.81	33.5%
0-60	4284.72	62.7%
60-90	2844.53	41.6%
0-90	6835.62	100.0%
90-180	0	0.0%
0-180	6835.62	100.0%

## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:



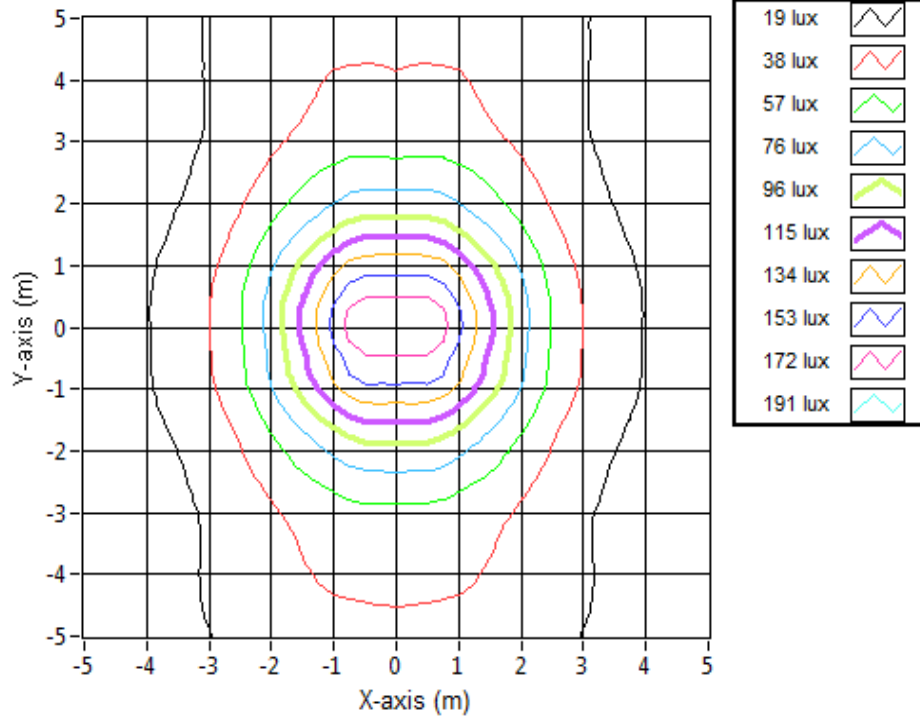


## Test Results: Goniometer

Results continued from previous page.

### Illuminance Plot:

Illuminance Contour Graph



### Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	34.92	7.22	185.2
6.096	69.85	14.44	46.3
9.144	104.77	21.66	20.6
12.192	139.70	28.88	11.6
15.24	174.62	36.10	7.4
18.288	209.54	43.32	5.1
21.336	244.47	50.54	3.8
24.384	279.39	57.76	2.9
27.432	314.32	64.98	2.3
30.48	349.24	72.20	1.9

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L17020.

Dialight unit model number ALF5WN27-XXXXX-N

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 85 (mA)

### LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If): 250 (mA)  
Maximum Rated Power Dissipation: 1.5 (W)  
Maximum Junction Temp. (Tj): 125 (°C)  
Thermal Resistance (Rth): 17 (°C/W)

Derived Specifications:

Maximum Power at Indicated Current: 0.51 (W)  
Maximum Source Temperature: 116.3 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below

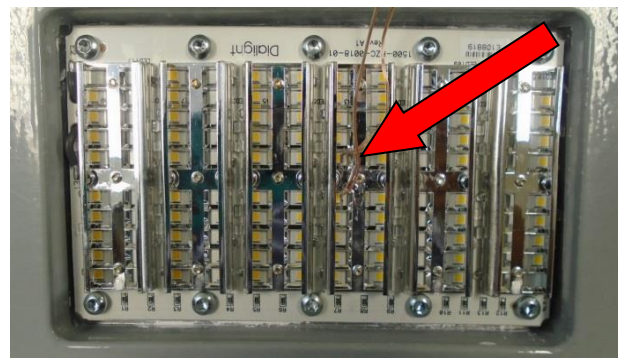
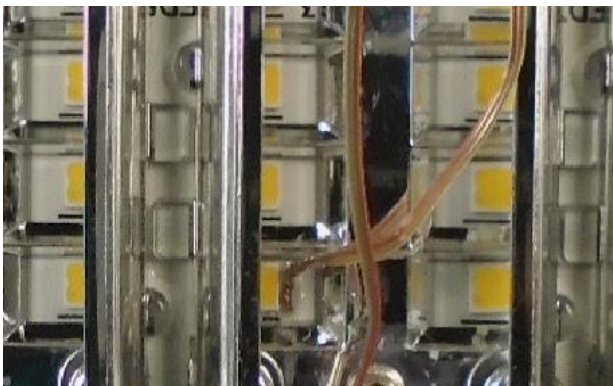
Ambient Temperature:  $25^{\circ} \pm 5^{\circ}$  (°C)

Ambient temperature at time of measurement: 24 (°C)

Relative humidity at time of measurement: 15%

### Results:

**Measured LED source temperature: 52.3 (°C)**





**Equipment Used:**

Equipment Name	Model Number
Omega TC	Dpi8
Fluke 8808A Digit Multimeter	8808A
YOKOGAWA Digital Power Meter	11/26/3981
LSI High Speed Mirror Goniometer	6240T
Instrument System Spectrometer	CAS140B-151
Instrument System 1.5 Meter Sphere	ISP1500
Volttech Power Analyzer	PM1000+
Delta Elektronika DC Power Supply	SM.300-5
Elgar AC Power Supply	CW1251P
Instek AC Power Supply	APS-9501
Sorensen DC Power Supply	XHR150-7
Fluke 971 Humidity Meter	971
Extech Hygro-Thermometer	4/16/3120
Fluke 52II Thermometer	52II Thermometer
Volttech Power Analyzer	PM1000+
BK Precision	1715A
TDK-Lambda	GEN1500W
Fluke 8808A Digit Multimeter	8808A
TPI Digital Thermometer 343	TPI 343
TPI Digital Thermometer 343	TPI 343
Step-Up Transformer	
Omega TC	Dpi8-C24
Agilent True RMS OLED Multimeter	U1273A
Adaptive Power Systems AC Power Supply	FC-210
Xitron Power Analyzer	XT2640

**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