

# Test Report

Report Number: L17082

Date: Nov 28, 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: ALU5AC26-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:** November 21, 2017 through November 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

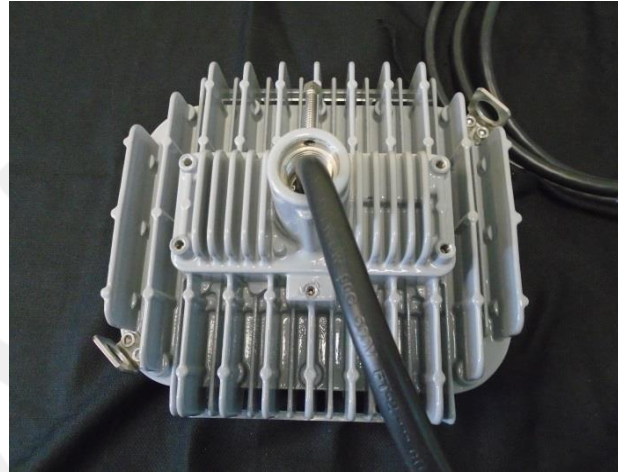
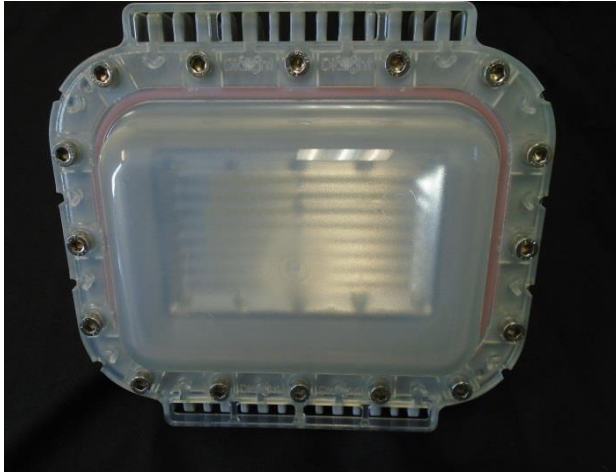
**Description of sample:**

Sample Number: L17082  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Area Light  
Description: Vigilant Area Light  
Model Number: ALU5AC26-xxxxx-N

## Report Summary

Sample number L17082  
Dialight unit model number ALU5AC26-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:	5051 (lumens)	4940 (lumens)
Electrical Power:	40.2 (W)	40.3 (W)
Luminous Efficacy:	125.6 (lumens/W)	122.4 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 40.2 (W)  
Power Factor (120VAC): 0.995  
Current ATHD % (120VAC): 5.779  
Input Power (277VAC): 39.2 (W)  
Power Factor (277VAC): 0.955  
Current ATHD % (277VAC): 17.9

### Color Measurements:

Correlated Color Temperature (CCT): 4878  
Color Rendering Index (CRI): 84.7  
Chromaticity Coordinate (x): 0.349  
Chromaticity Coordinate (y): 0.359  
Chromaticity Coordinate (u'): 0.211  
Chromaticity Coordinate (v'): 0.326  
DUV: 0.0021

### Temperature Measurements:

In Situ LED Source Temperature: 44.6 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L17082.

Dialight unit model number ALU5AC26-xxxxx-N

### Test Conditions:

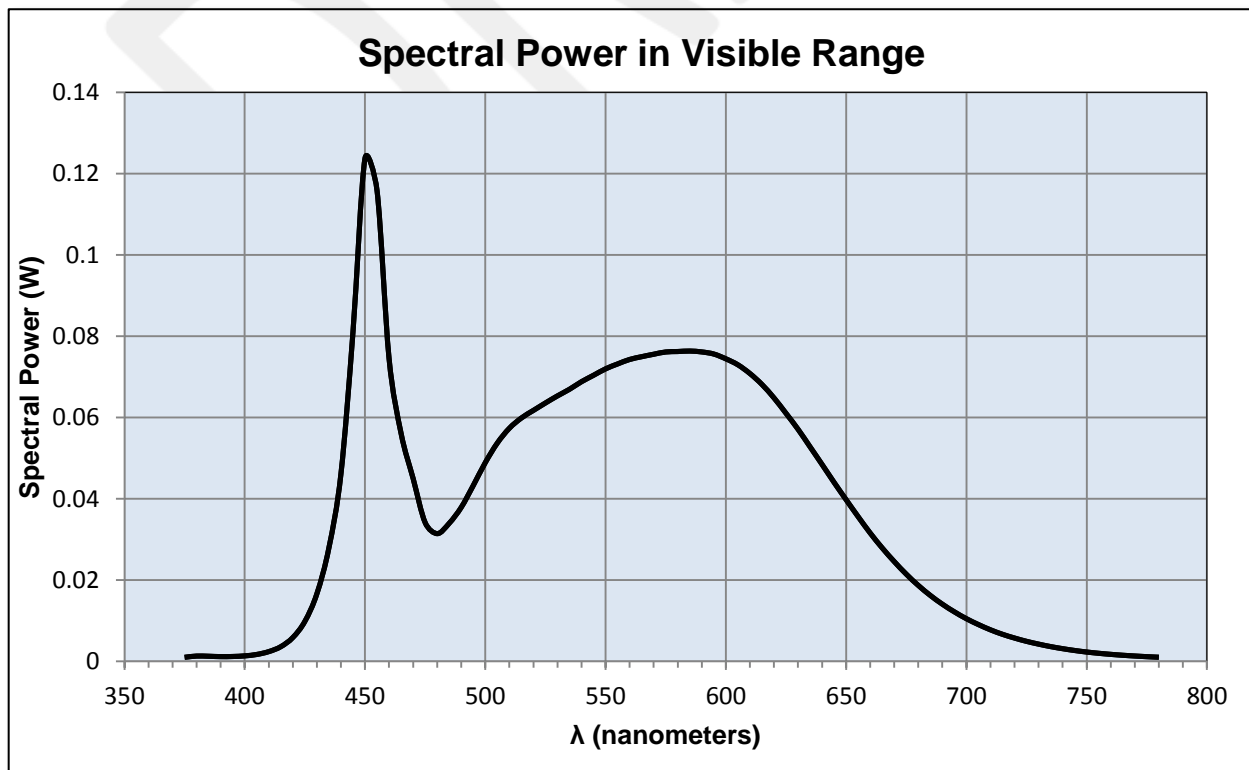
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
 Input Current: 0.336 (A)  
 Input Power: 40.2 (W)  
 Input Power Factor: 0.995  
 Current ATHD: 5.779 (%)

### Photometric measurements:

Luminous Flux: 5051 (lumens)  
 Luminous Efficacy: 125.6 (lumens/W)  
 Correlated Color Temperature (CCT): 4878 (K)  
 CRI -Ra: 84.7  
 CRI -R9: 19.3  
 DUV: 0.0021  
 CIE Coordinate (x): 0.349  
 CIE Coordinate (y): 0.359  
 CIE Coordinate (u'): 0.211  
 CIE Coordinate (v'): 0.326



## 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	0.001	515	0.060	655	0.036
380	0.001	520	0.062	660	0.032
385	0.001	525	0.064	665	0.028
390	0.001	530	0.065	670	0.025
395	0.001	535	0.067	675	0.021
400	0.001	540	0.069	680	0.019
405	0.002	545	0.070	685	0.016
410	0.002	550	0.072	690	0.014
415	0.004	555	0.073	695	0.012
420	0.006	560	0.074	700	0.010
425	0.010	565	0.075	705	0.009
430	0.017	570	0.076	710	0.008
435	0.028	575	0.076	715	0.007
440	0.046	580	0.076	720	0.006
445	0.081	585	0.076	725	0.005
450	0.124	590	0.076	730	0.004
455	0.116	595	0.076	735	0.004
460	0.075	600	0.074	740	0.003
465	0.056	605	0.073	745	0.003
470	0.045	610	0.071	750	0.002
475	0.034	615	0.068	755	0.002
480	0.031	620	0.065	760	0.002
485	0.034	625	0.061	765	0.001
490	0.038	630	0.057	770	0.001
495	0.043	635	0.053	775	0.001
500	0.049	640	0.048	780	0.001
505	0.054	645	0.044		
510	0.057	650	0.040		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L17082.  
Dialight unit model number ALU5AC26-xxxxx-N

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.337 (A)  
Input Power: 40.3 (W)  
Power Factor: 0.995

### Photometric measurements:

Absolute Luminous Flux: 4940 (lumens)  
Luminous Efficacy: 122.4 (lumens/W)

### Intensity Summary:

<b>INTENSITY (CANDLEPOWER) SUMMARY</b>						
ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	2244	2244	2244	2244	2244	
5	2250	2248	2250	2256	2251	83
15	2315	2290	2244	2236	2199	461
25	2465	2404	2257	2087	2016	768
35	2412	2383	2234	1904	1737	928
45	1769	1879	1999	1726	1459	941
55	747	944	1343	1520	1200	790
65	209	254	494	1055	797	511
75	117	121	139	324	386	253
85	59	63	65	78	93	100
95	44	46	45	43	43	49
105	41	37	33	32	38	37
115	15	7	6	13	19	17
125	0	0	0	0	1	2
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

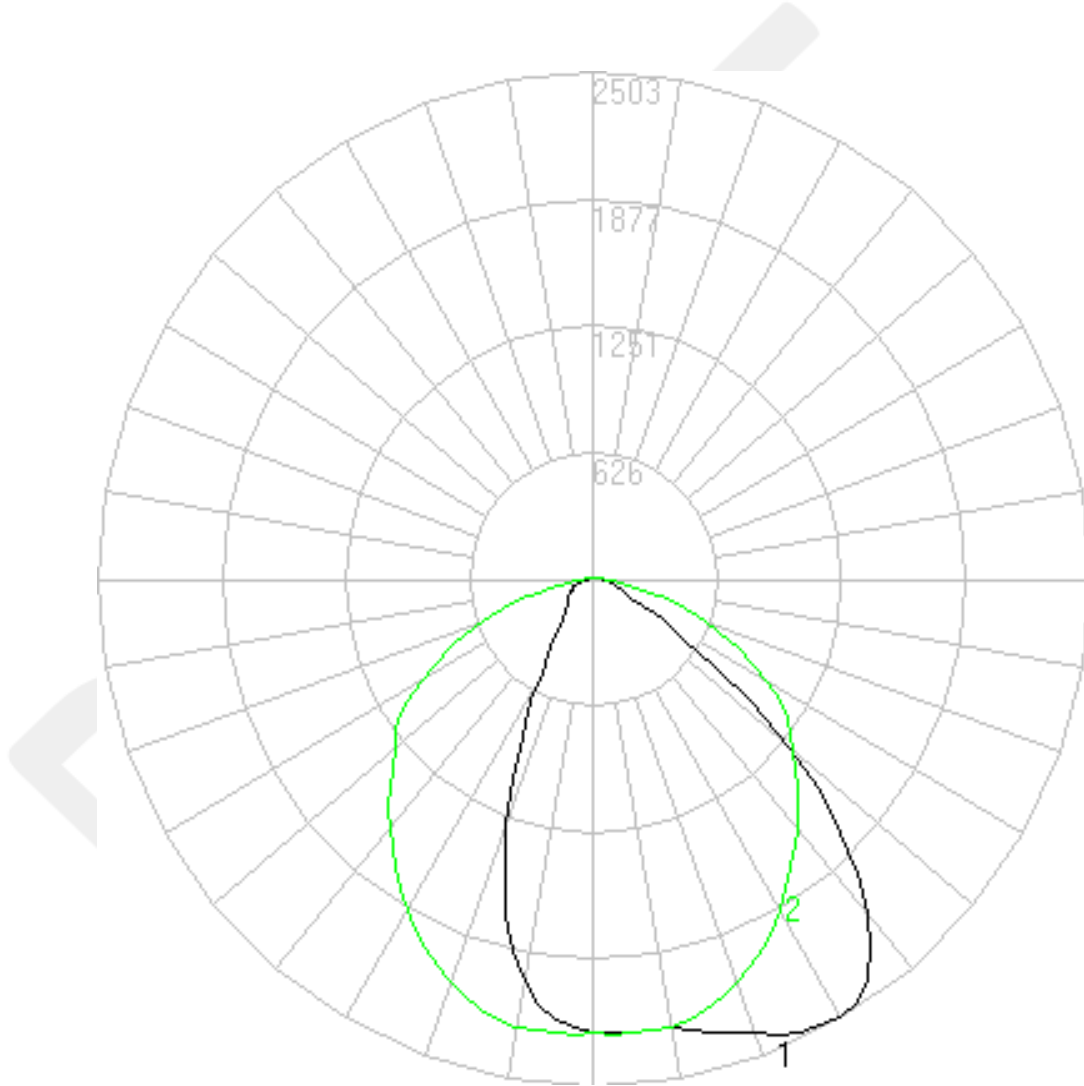
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	1765.63	35.7%
0-40	2718.95	55.0%
0-60	4265.99	86.4%
60-90	733.53	14.8%
0-90	4861.96	98.4%
90-180	90.71	1.8%
0-180	4940.16	100.0%

## Test Results: Goniometer

Results continued from previous page.

**Polar Plot:**

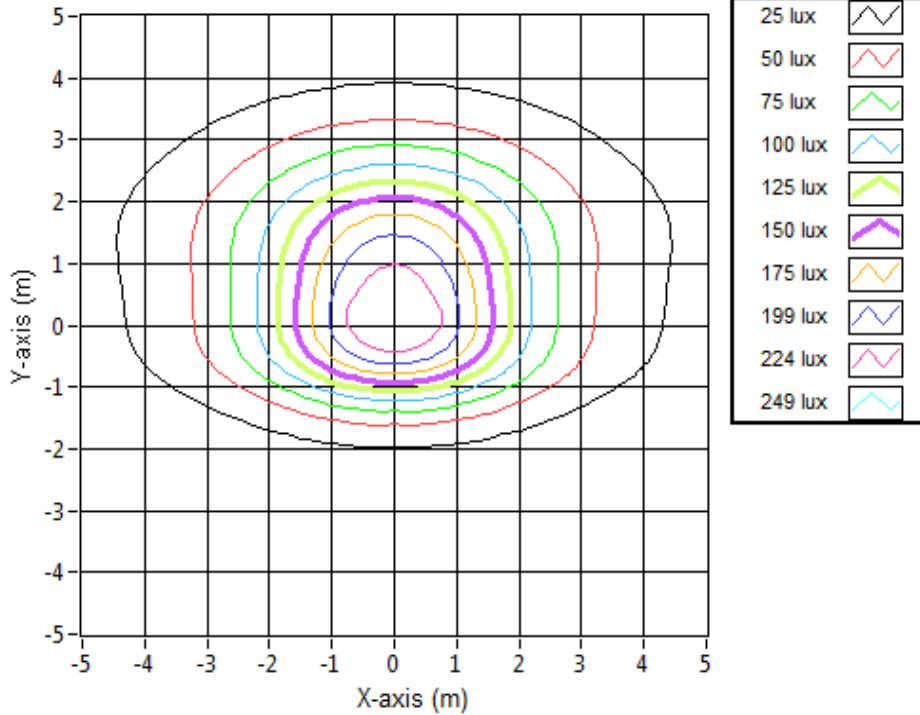


## Test Results: Goniometer

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	5.06	9.55	241.5
6.096	10.11	19.09	60.4
9.144	15.17	28.64	26.8
12.192	20.23	38.19	15.1
15.24	25.28	47.74	9.7
18.288	30.34	57.28	6.7
21.336	35.40	66.83	4.9
24.384	40.45	76.38	3.8
27.432	45.51	85.92	3.0
30.48	50.57	95.47	2.4



## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L17082.

Dialight unit model number ALU5AC26-xxxxx-N

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 38 (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: 0.228 (W)  
Maximum Source Temperature: 121.1 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below

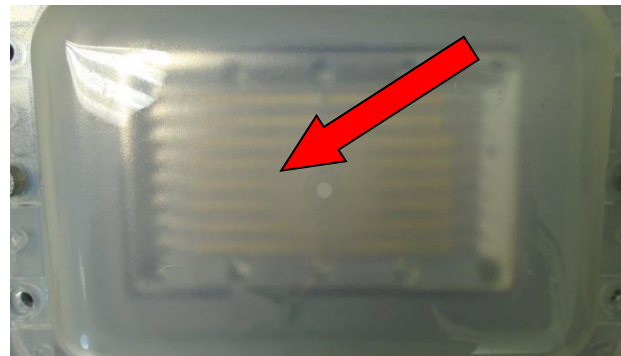
Ambient Temperature:  $25^{\circ} \pm 5'$  (°C)

Ambient temperature at time of measurement: 23.9 (°C)

Relative humidity at time of measurement: 29%

### Results:

**Measured LED source temperature: 44.6 (°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
Delta Elektronika DC Power Supply	SM.300-5
Instek AC Power Supply	APS-9501
Sorensen DC Power Supply	XHR150-7
TPI Digital Thermometer	TPI 343
Fluke 52II Thermometer	068158
Fluke 971 Humidity Meter	971
Volttech Power Analyzer	PM1000+
Volttech Universal Breakout Box	PM1000+
BK Precision	1715A
Step-Up Transformer	
Omega TC	Dpi8-C24
Agilent True RMS OLED Multimeter	U1273A
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
Adaptive Power Systems AC Power Supply	FC-210
Xitron Power Analyzer	XT2640
GwINSTEK DC Power Supply	GEP172679
Osram Sylvania Calibration Lamp for Sphere	STD-20WF-3

**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