

# Test Report

Report Number: L17014

Date: May 17, 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: ALU5AC29DxxxxN

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 4, 2017 through May 10, 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

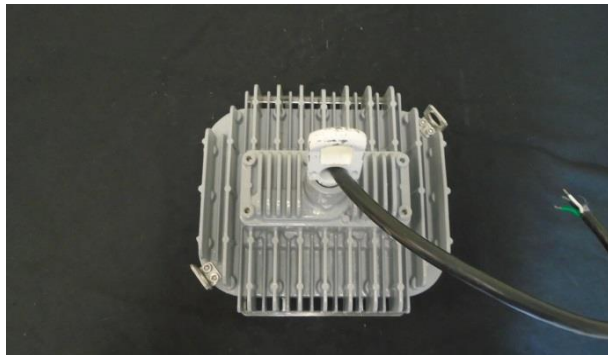
**Description of sample:**

Sample Number: L17014  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Area Light  
Description: Vigilant Area Light  
Model Number: ALU5AC29DxxxxN

## Report Summary

Sample number L17014  
Dialight unit model number ALU5AC29DxxxxN

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	8444 (lumens)	8458 (lumens)
Electrical Power:	65.5 (W)	65.4 (W)
Luminous Efficacy:	129 (lumens/W)	129.4 (lumens/W)

#### Electrical Measurements:

Input Power (120VAC): 65.5 (W)  
 Power Factor (120VAC): 0.995  
 Current ATHD % (120VAC): 6.207  
 Input Power (277VAC): 63.6 (W)  
 Power Factor (277VAC): 0.95  
 Current ATHD % (277VAC): 11.6

#### Color Measurements:

Correlated Color Temperature (CCT): 4753  
 Color Rendering Index (CRI): 83.3  
 Chromaticity Coordinate (x): 0.353  
 Chromaticity Coordinate (y): 0.364  
 Chromaticity Coordinate (u'): 0.212  
 Chromaticity Coordinate (v'): 0.328  
 DUV: 0.003

#### Temperature Measurements:

In Situ LED Source Temperature: 62.5 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L17014.  
Dialight unit model number ALU5AC29DxxxxN

### Test Conditions:

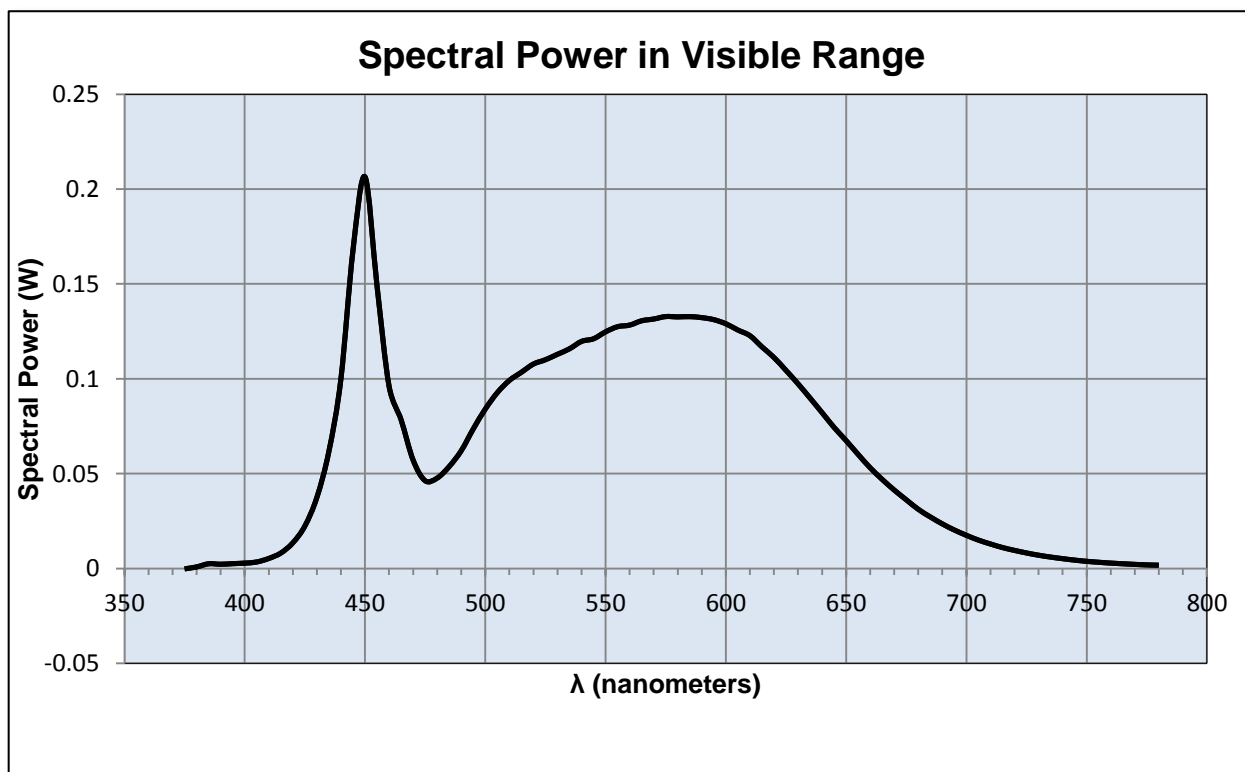
Ambient Temperature: 25 ± 1 (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 0.548 (A)  
Input Power: 65.5 (W)  
Input Power Factor: 0.995  
Current ATHD: 6.207 (%)

### Photometric measurements:

Luminous Flux: 8444 (lumens)  
Luminous Efficacy: 129.0 (lumens/W)  
Correlated Color Temperature (CCT): 4753 (K)  
CRI -Ra: 83.3  
CRI -R9: 13  
DUV: 0.003  
CIE Coordinate (x): 0.353  
CIE Coordinate (y): 0.364  
CIE Coordinate (u'): 0.212  
CIE Coordinate (v'): 0.328



## 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	0.103	655	0.060
380	0.001	520	0.108	660	0.053
385	0.002	525	0.110	665	0.047
390	0.002	530	0.113	670	0.041
395	0.003	535	0.116	675	0.036
400	0.003	540	0.120	680	0.031
405	0.003	545	0.121	685	0.027
410	0.005	550	0.125	690	0.024
415	0.008	555	0.127	695	0.020
420	0.014	560	0.128	700	0.017
425	0.022	565	0.131	705	0.015
430	0.037	570	0.131	710	0.013
435	0.062	575	0.133	715	0.011
440	0.100	580	0.133	720	0.010
445	0.168	585	0.133	725	0.008
450	0.206	590	0.132	730	0.007
455	0.149	595	0.131	735	0.006
460	0.096	600	0.129	740	0.005
465	0.078	605	0.126	745	0.004
470	0.057	610	0.123	750	0.004
475	0.046	615	0.117	755	0.003
480	0.048	620	0.111	760	0.003
485	0.054	625	0.104	765	0.002
490	0.062	630	0.097	770	0.002
495	0.074	635	0.090	775	0.002
500	0.084	640	0.082	780	0.002
505	0.093	645	0.074		
510	0.099	650	0.067		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L17014.  
Dialight unit model number ALU5AC29DxxxxN

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.547 (A)  
Input Power: 65.4 (W)  
Power Factor: 0.995

### Photometric measurements:

Absolute Luminous Flux: 8458 (lumens)  
Luminous Efficacy: 129.4 (lumens/W)

### Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	4086	4086	4086	4086	4086	
5	4076	4092	4107	4117	4108	152
15	4169	4138	4093	4102	4042	838
25	4497	4378	4174	3845	3702	1407
35	4350	4356	4130	3519	3215	1697
45	3120	3358	3655	3193	2701	1689
55	1309	1677	2463	2788	2106	1390
65	205	323	793	1856	1434	830
75	69	73	121	474	652	346
85	30	31	39	70	134	99
95	0	0	0	0	0	11
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

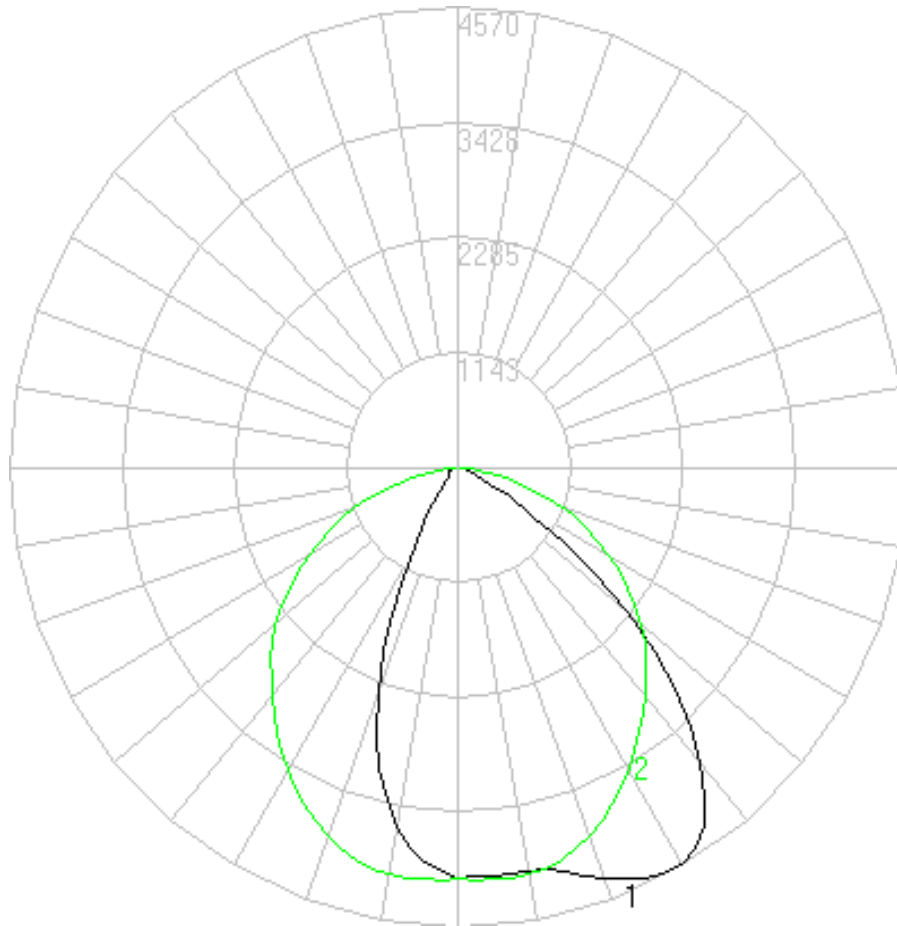
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	3227.88	38.2%
0-40	4956.78	58.6%
0-60	7661.43	90.6%
60-90	1022.27	12.1%
0-90	8458.46	100.0%
90-180	0	0.0%
0-180	8458.46	100.0%

## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:

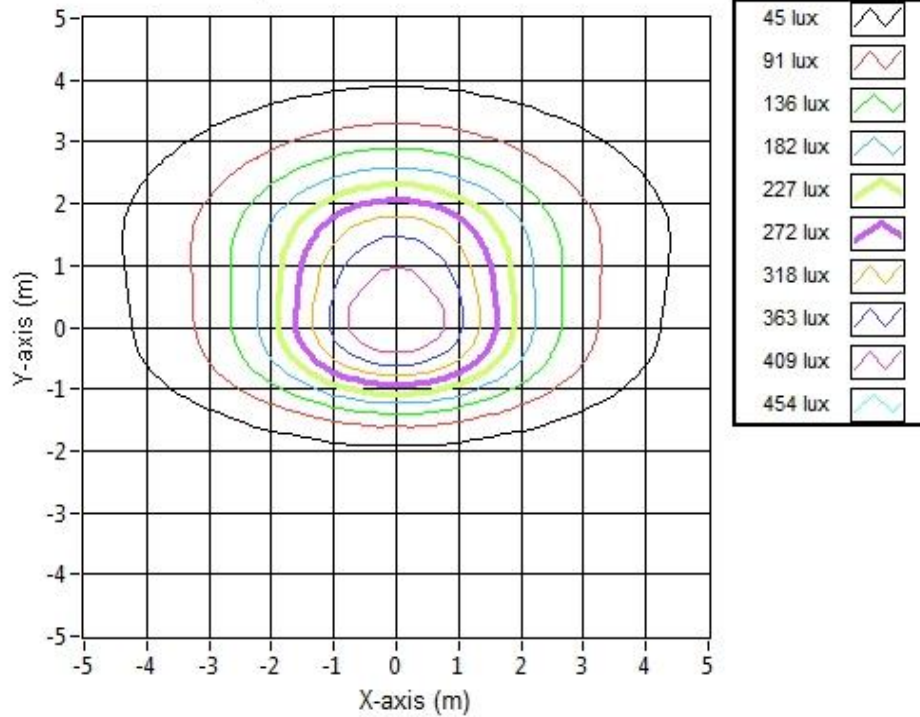


## Test Results: Goniometer

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	5.01	9.03	439.8
6.096	10.01	18.06	110.0
9.144	15.02	27.10	48.9
12.192	20.03	36.13	27.5
15.24	25.03	45.16	17.6
18.288	30.04	54.19	12.2
21.336	35.05	63.23	9.0
24.384	40.05	72.26	6.9
27.432	45.06	81.29	5.4
30.48	50.06	90.32	4.4



## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L17014.  
Dialight unit model number ALU5AC29DxxxxN

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 53 (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:

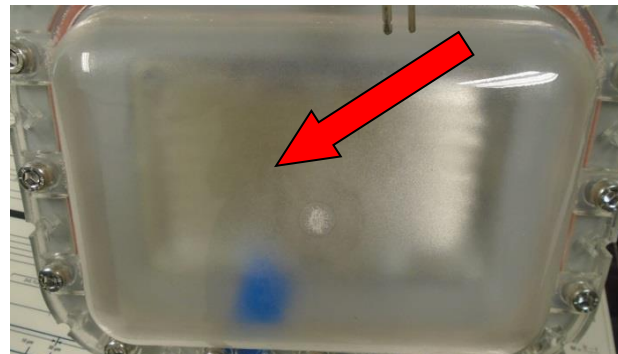
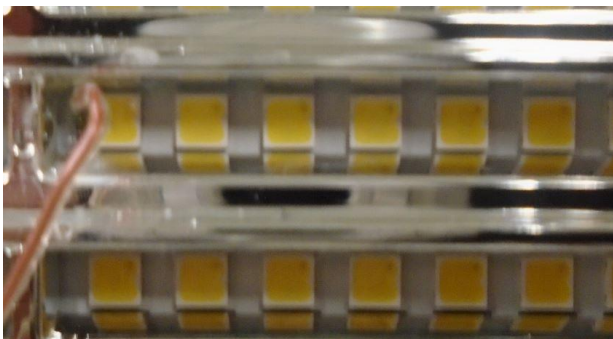
Maximum Power at Indicated Current: 0.318 (W)  
Maximum Source Temperature: 119.6 (°C)

### 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: 17%

### Results:

**Measured LED source temperature: 62.5 (°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
Extech Hygro-Thermometer	4/16/3120
Extech Hygro-Thermometer	4/16/3120
Fluke 971 Humidity Meter	971
Volttech Power Analyzer	PM1000+
Volttech Universal Breakout Box	PM1000+
Dialight Golden Sample	HB1N4N
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
Dialight Golden Sample	1/0/1900
	1/0/1900
	1/0/1900

**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