

# Test Report

Report Number: L17013

Date: May 16, 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: ALC7BC29DxxxxN

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 3, 2017 through May 6, 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

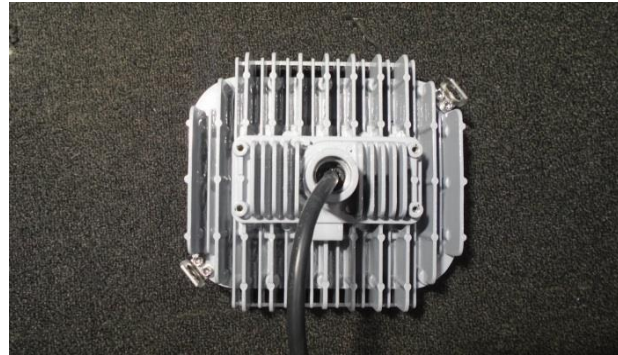
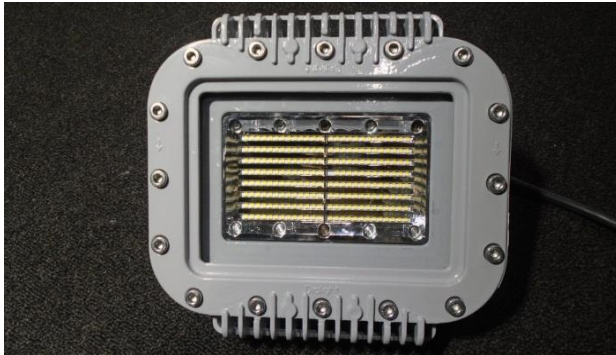
**Description of sample:**

Sample Number: L17013  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Area Light  
Description: Vigilant Area Light  
Model Number: ALC7BC29DxxxxN

## Report Summary

Sample number L17013  
Dialight unit model number ALC7BC29DxxxxN

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	8508 (lumens)	8578 (lumens)
Electrical Power:	66.5 (W)	65.8 (W)
Luminous Efficacy:	129.1 (lumens/W)	130.3 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 66.5 (W)  
Power Factor (120VAC): 0.995  
Current ATHD % (120VAC): 6.085  
Input Power (277VAC): 63.5 (W)  
Power Factor (277VAC): 0.948  
Current ATHD % (277VAC): 12.53

### Color Measurements:

Correlated Color Temperature (CCT): 4811  
Color Rendering Index (CRI): 82.8  
Chromaticity Coordinate (x): 0.352  
Chromaticity Coordinate (y): 0.363  
Chromaticity Coordinate (u'): 0.211  
Chromaticity Coordinate (v'): 0.328  
DUV: 0.0033

### Temperature Measurements:

In Situ LED Source Temperature: 59.2 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L17013.

Dialight unit model number ALC7BC29DxxxxN

### Test Conditions:

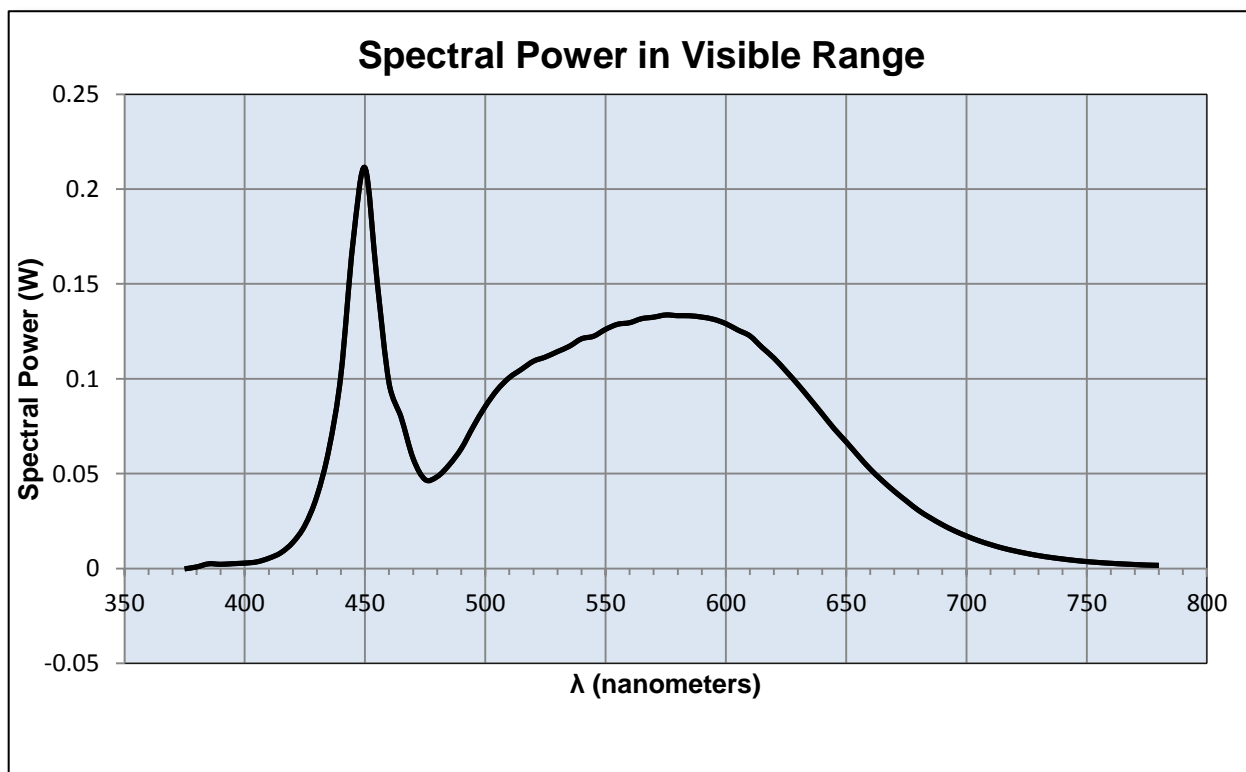
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 0.556 (A)  
Input Power: 66.5 (W)  
Input Power Factor: 0.995  
Current ATHD: 6.085 (%)

### Photometric measurements:

Luminous Flux: 8508 (lumens)  
Luminous Efficacy: 129.1 (lumens/W)  
Correlated Color Temperature (CCT): 4811 (K)  
CRI -Ra: 82.8  
CRI -R9: 10.1  
DUV: 0.0033  
CIE Coordinate (x): 0.352  
CIE Coordinate (y): 0.363  
CIE Coordinate (u'): 0.211  
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	0.105	655	0.059
380	0.001	520	0.109	660	0.052
385	0.002	525	0.111	665	0.046
390	0.002	530	0.114	670	0.041
395	0.003	535	0.117	675	0.036
400	0.003	540	0.121	680	0.031
405	0.003	545	0.122	685	0.027
410	0.005	550	0.126	690	0.023
415	0.008	555	0.129	695	0.020
420	0.014	560	0.130	700	0.017
425	0.023	565	0.132	705	0.015
430	0.038	570	0.132	710	0.013
435	0.063	575	0.134	715	0.011
440	0.102	580	0.133	720	0.009
445	0.172	585	0.133	725	0.008
450	0.211	590	0.133	730	0.007
455	0.152	595	0.131	735	0.006
460	0.098	600	0.129	740	0.005
465	0.080	605	0.126	745	0.004
470	0.058	610	0.123	750	0.004
475	0.047	615	0.117	755	0.003
480	0.048	620	0.111	760	0.003
485	0.055	625	0.104	765	0.002
490	0.063	630	0.097	770	0.002
495	0.075	635	0.089	775	0.002
500	0.085	640	0.082	780	0.002
505	0.094	645	0.074		
510	0.101	650	0.067		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L17013.  
Dialight unit model number ALC7BC29DxxxxN

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.55 (A)  
Input Power: 65.8 (W)  
Power Factor: 0.995

### Photometric measurements:

Absolute Luminous Flux: 8578 (lumens)  
Luminous Efficacy: 130.3 (lumens/W)

### Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	3326	3326	3326	3326	3326	
5	3370	3368	3367	3387	3396	125
15	3437	3594	3531	3449	3417	745
25	3206	3426	3406	3351	3337	1351
35	2862	3047	3145	3204	3110	1812
45	2400	2629	2758	2389	2179	1969
55	1811	2102	1757	895	573	1588
65	1036	1060	248	100	104	757
75	292	65	36	25	23	212
85	6	4	3	2	1	17
95	0	0	0	0	0	0
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

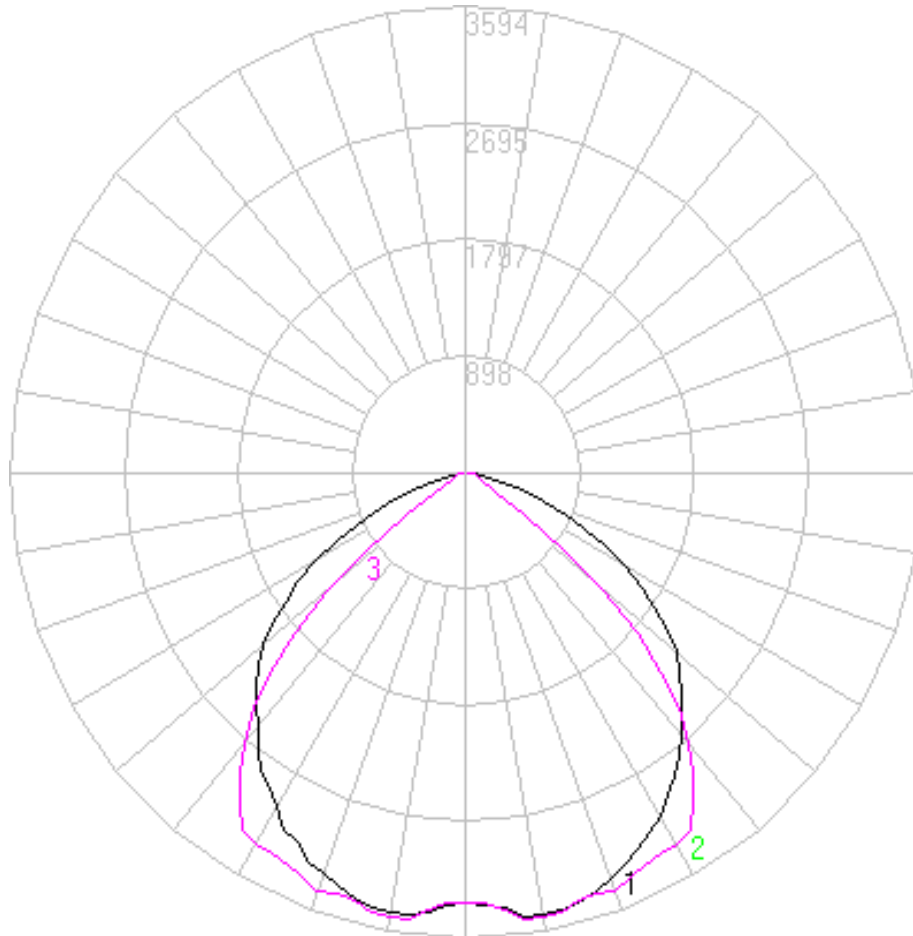
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	3080.66	35.9%
0-40	5027.19	58.6%
0-60	8063.77	94.0%
60-90	721.55	8.4%
0-90	8576.9	100.0%
90-180	0	0.0%
0-180	8576.9	100.0%

## Test Results: Goniometer

Results continued from previous page.

Polar Plot:

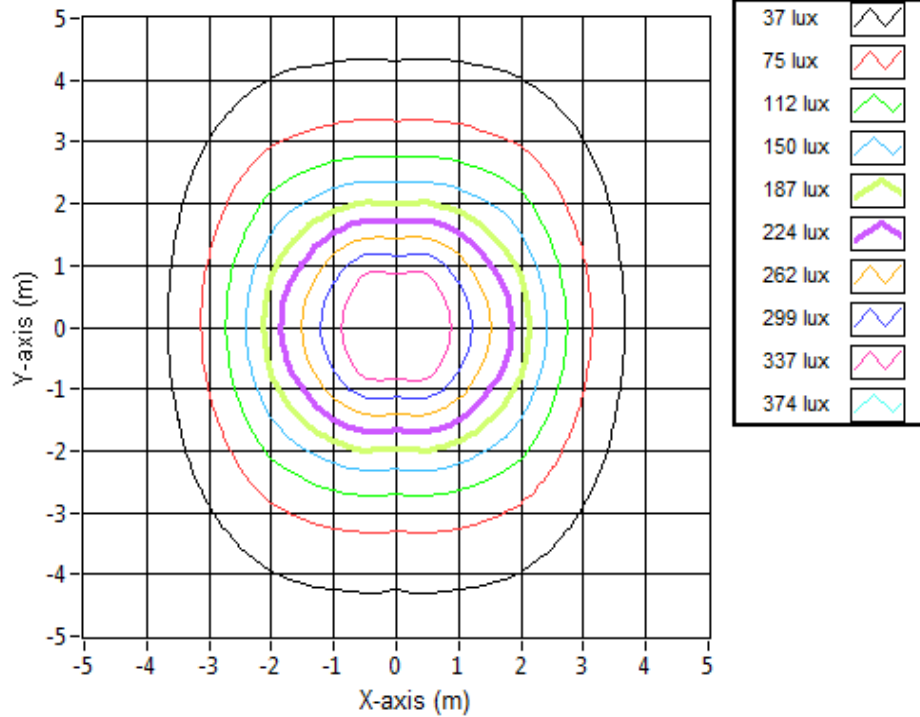


## Test Results: Goniometer

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	9.30	6.90	358.0
6.096	18.60	13.80	89.5
9.144	27.89	20.69	39.8
12.192	37.19	27.59	22.4
15.24	46.49	34.49	14.3
18.288	55.79	41.39	9.9
21.336	65.09	48.28	7.3
24.384	74.38	55.18	5.6
27.432	83.68	62.08	4.4
30.48	92.98	68.98	3.6



## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L17013.  
Dialight unit model number ALC7BC29DxxxxN

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:

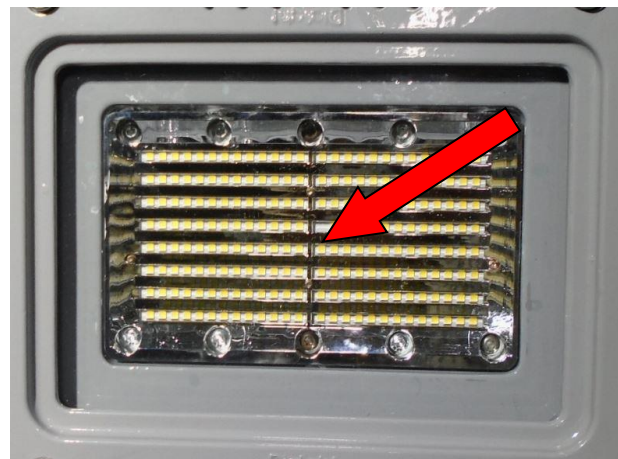
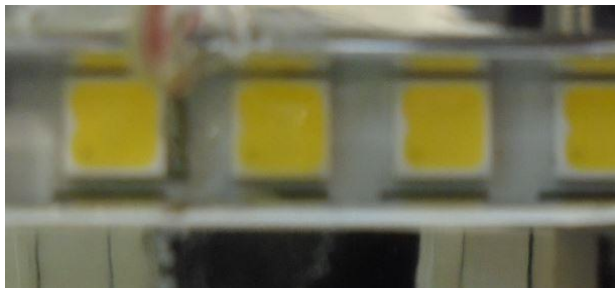
Maximum Power at Indicated Current: 0.318 (W)  
Maximum Source Temperature: 119.6 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 5^{\circ}$  (°C)  
Ambient temperature at time of measurement: 23.7 (°C)  
Relative humidity at time of measurement: 18%

### Results:

**Measured LED source temperature: 59.2 (°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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Optical Engineer  
Approved Signatory