

Test Report

Report Number: L17026

Date: Jun 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: ALU7AC23-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: June 15, 2017 through June 16, 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: L17026
Manufacturer: Dialight Corporation
Product Name: Vigilant Area Light
Description: Vigilant Area Light
Model Number: ALU7AC23-xxxxx-N

Report Summary

Sample number L17026
Dialight unit model number ALU7AC23-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:	2886 (lumens)	2900 (lumens)
Electrical Power:	23.5 (W)	23.7 (W)
Luminous Efficacy:	123 (lumens/W)	122.3 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 23.5 (W)
Power Factor (120VAC): 0.992
Current ATHD % (120VAC): 7.44
Input Power (277VAC): 23.3 (W)
Power Factor (277VAC): 0.925
Current ATHD % (277VAC): 17

Color Measurements:

Correlated Color Temperature (CCT): 4889
Color Rendering Index (CRI): 82.9
Chromaticity Coordinate (x): 0.349
Chromaticity Coordinate (y): 0.361
Chromaticity Coordinate (u'): 0.211
Chromaticity Coordinate (v'): 0.326
DUV: 0.003

Temperature Measurements:

In Situ LED Source Temperature: 37.9 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L17026.

Dialight unit model number ALU7AC23-xxxxx-N

Test Conditions:

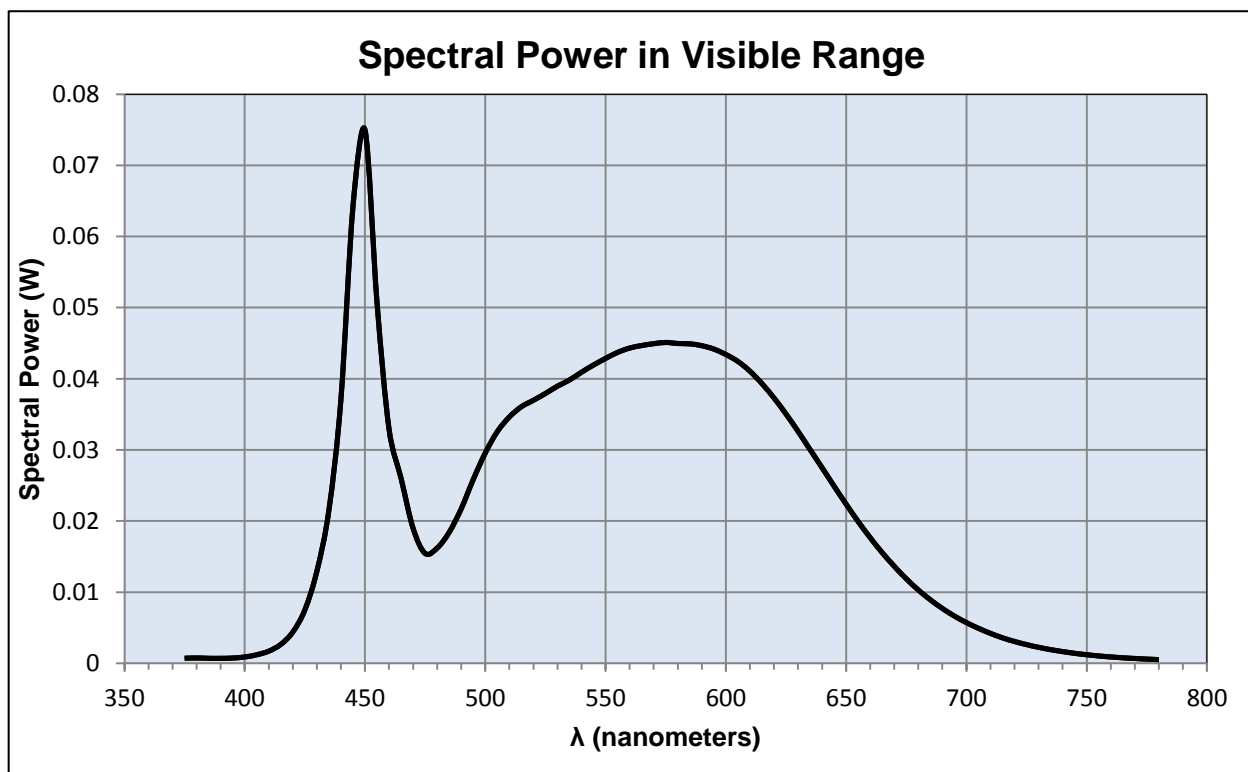
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
 Input Current: 0.196 (A)
 Input Power: 23.5 (W)
 Input Power Factor: 0.992
 Current ATHD: 7.44 (%)

Photometric measurements:

Luminous Flux: 2886 (lumens)
 Luminous Efficacy: 123.0 (lumens/W)
 Correlated Color Temperature (CCT): 4889 (K)
 CRI -Ra: 82.9
 CRI -R9: 11.5
 DUV: 0.003
 CIE Coordinate (x): 0.349
 CIE Coordinate (y): 0.361
 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:

λ (nm)	(W/nm)	λ (nm)	(W/nm)	λ (nm)	(W/nm)
375	0.001	515	0.036	655	0.020
380	0.001	520	0.037	660	0.018
385	0.001	525	0.038	665	0.016
390	0.001	530	0.039	670	0.014
395	0.001	535	0.040	675	0.012
400	0.001	540	0.041	680	0.010
405	0.001	545	0.042	685	0.009
410	0.002	550	0.043	690	0.008
415	0.003	555	0.044	695	0.007
420	0.004	560	0.044	700	0.006
425	0.008	565	0.045	705	0.005
430	0.013	570	0.045	710	0.004
435	0.022	575	0.045	715	0.004
440	0.037	580	0.045	720	0.003
445	0.064	585	0.045	725	0.003
450	0.075	590	0.045	730	0.002
455	0.051	595	0.044	735	0.002
460	0.033	600	0.043	740	0.002
465	0.026	605	0.042	745	0.001
470	0.019	610	0.041	750	0.001
475	0.015	615	0.039	755	0.001
480	0.016	620	0.037	760	0.001
485	0.018	625	0.035	765	0.001
490	0.022	630	0.033	770	0.001
495	0.026	635	0.030	775	0.001
500	0.030	640	0.027	780	0.001
505	0.033	645	0.025		
510	0.035	650	0.022		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L17026.
Dialight unit model number ALU7AC23-xxxxx-N

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.199 (A)
Input Power: 23.7 (W)
Power Factor: 0.991

Photometric measurements:

Absolute Luminous Flux: 2900 (lumens)
Luminous Efficacy: 122.3 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	1400	1400	1400	1400	1400	
5	1390	1388	1389	1406	1422	52
15	1467	1454	1453	1444	1433	297
25	1635	1589	1506	1342	1306	502
35	1619	1631	1536	1263	1162	607
45	1092	1214	1386	1181	976	609
55	291	427	827	1033	748	476
65	16	19	146	639	469	253
75	5	7	8	44	107	75
85	0	0	1	1	1	5
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

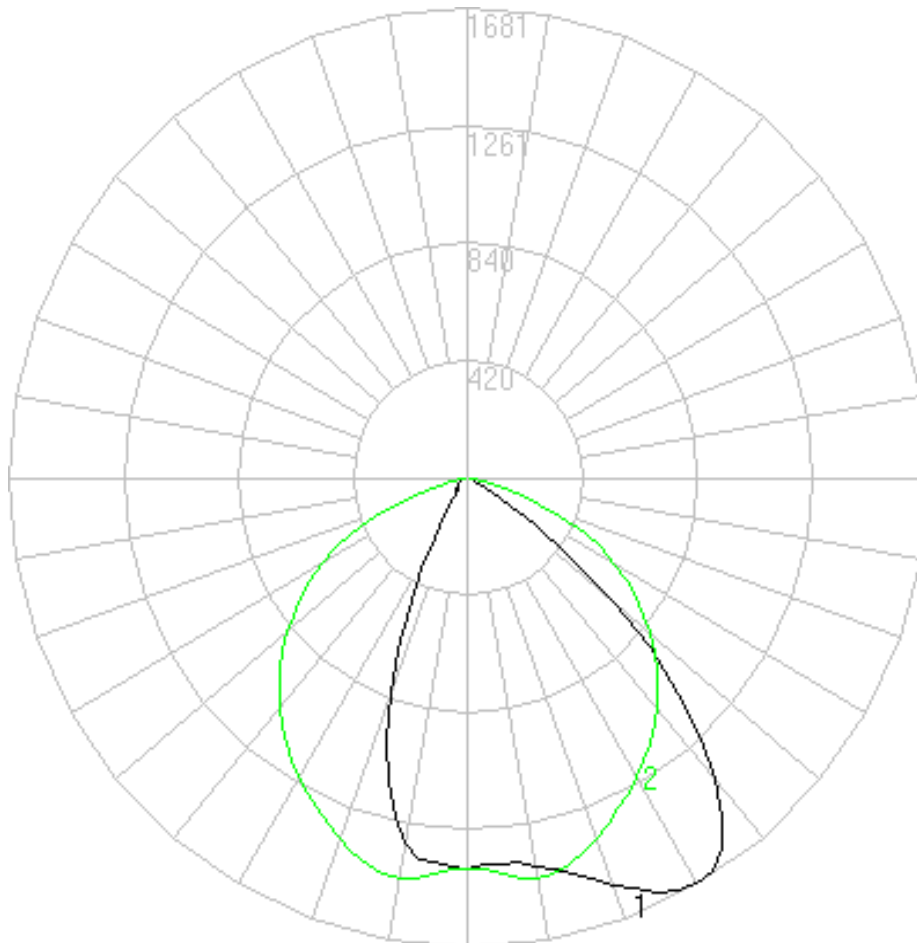
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	1146.93	39.9%
0-40	1769.54	61.5%
0-60	2696.58	93.8%
60-90	248.82	8.7%
0-90	2875.58	100.0%
90-180	0	0.0%
0-180	2875.58	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

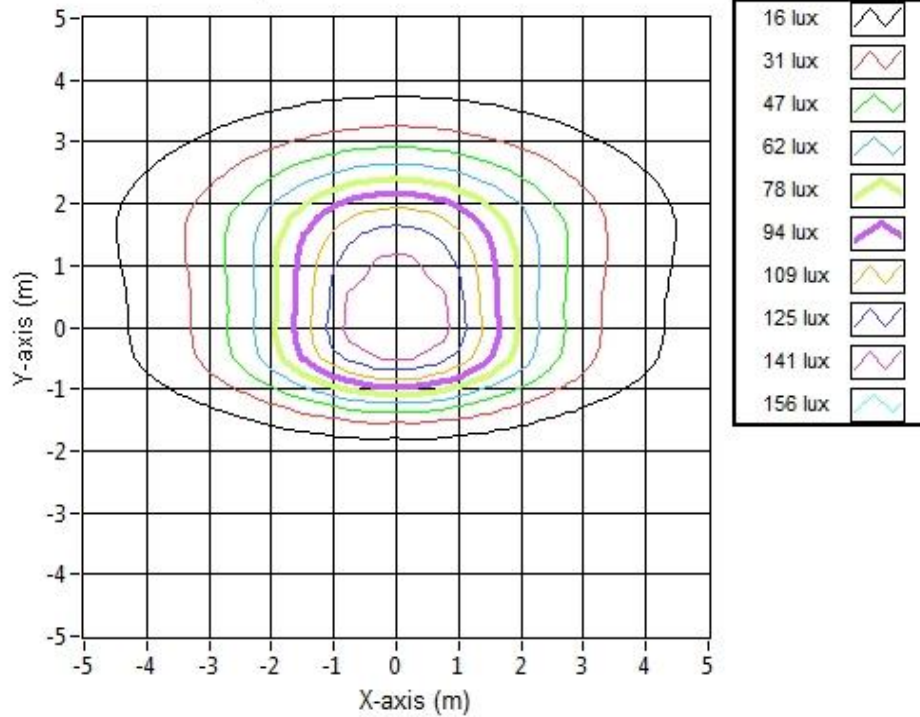


Test Results: Goniometer

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	4.87	9.35	150.7
6.096	9.73	18.71	37.7
9.144	14.60	28.06	16.7
12.192	19.46	37.42	9.4
15.24	24.33	46.77	6.0
18.288	29.20	56.13	4.2
21.336	34.06	65.48	3.1
24.384	38.93	74.84	2.4
27.432	43.79	84.19	1.9
30.48	48.66	93.55	1.5

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L17026.

Dialight unit model number ALU7AC23-xxxxx-N

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 39 (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: 0.234 (W)
Maximum Source Temperature: 121 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below

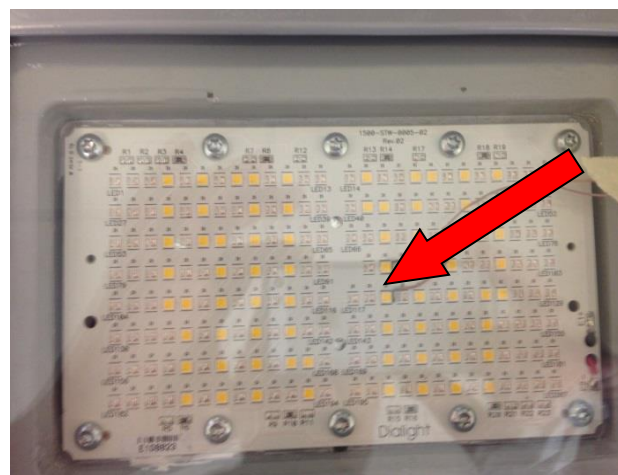
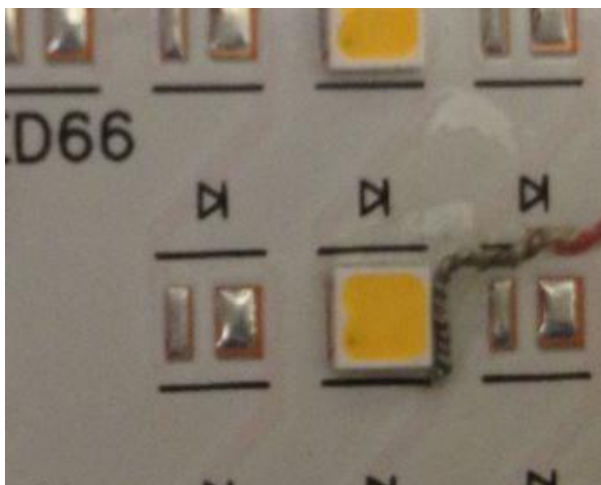
Ambient Temperature: 25° ± 5' (°C)

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

Relative humidity at time of measurement: 20%

Results:

Measured LED source temperature: 37.9 (°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

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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