Test Report

Report Number: L17007 Date: Apr 6, 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: ALC7AN23-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: April 5, 2017 through April 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: L17007
Manufacturer: Dialight Corporation
Product Name: Vigilant Area Light
Description: Vigilant Area Light
Model Number: ALC7AN23-xxxxx-N

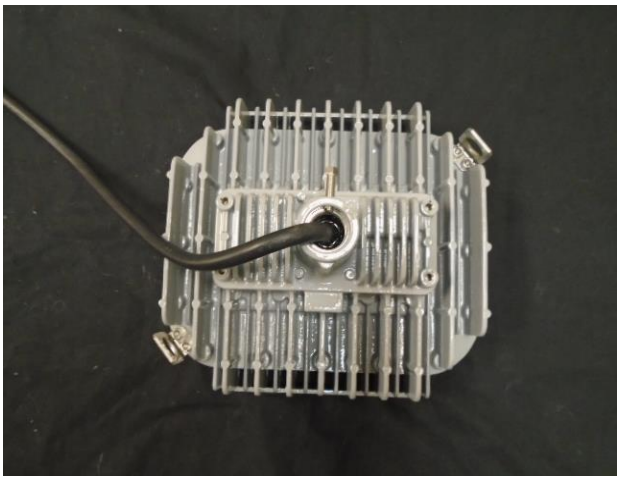
Dialight OPTICS LABORATORY

NVLAP TESTING NVLAP LAB CODE 201033-0

Report Summary

Sample number L17007
Dialight unit model number ALC7AN23-xxxxx-N

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	Integrating Sphere		Goniophotometer	
Luminous Flux:	2923	(lumens)	2946	(lumens)
Electrical Power:	23.9	(W)	23.9	(W)
Luminous Efficacy:	122.8	(lumens/W)	123.1	(lumens/W)

Electrical Measurements:

Input Power (120VAC):	23.9	(W)
Power Factor (120VAC):	0.992	
Current ATHD % (120VAC):	7.183	
Input Power (277VAC):	23.7	(W)
Power Factor (277VAC):	0.926	
Current ATHD % (277VAC):	16.37	

Color Measurements:

Correlated Color Temperature (CCT):	3993
Color Rendering Index (CRI):	83.8
Chromaticity Coordinate (x):	0.382
Chromaticity Coordinate (y):	0.381
Chromaticity Coordinate (u'):	0.225
Chromaticity Coordinate (v'):	0.336
DUV:	0.0014

Temperature Measurements:

In Situ LED Source Temperature:	42.3	(°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L17007.
Dialight unit model number ALC7AN23-xxxxx-N

Test Conditions:

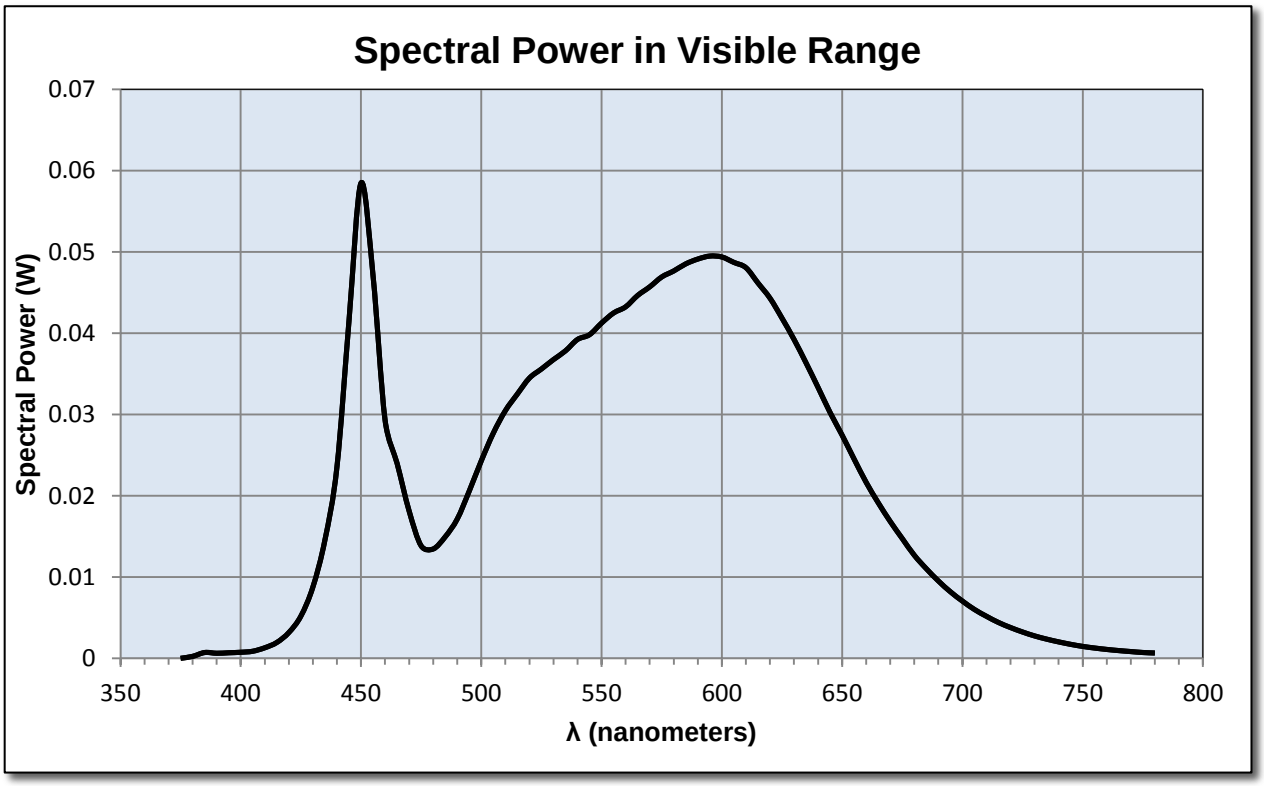
Ambient Temperature:	25 ± 1	(°C)

Electrical Measurements:

Input Voltage:	120	(VAC)
Input Current:	0.2	(A)
Input Power:	23.9	(W)
Input Power Factor:	0.992	
Current ATHD:	7.183	(%)

Photometric measurements:

Luminous Flux:	2923	(lumens)
Luminous Efficacy:	122.8	(lumens/W)
Correlated Color Temperature (CCT):	3993	(K)
CRI -Ra:	83.8	
CRI -R9:	15.5	
DUV:	0.0014	
CIE Coordinate (x):	0.382	
CIE Coordinate (y):	0.381	
CIE Coordinate (u'):	0.225	
CIE Coordinate (v'):	0.336	



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	0.000	515	0.033	655	0.024
380	0.000	520	0.034	660	0.022
385	0.001	525	0.036	665	0.019
390	0.001	530	0.037	670	0.017
395	0.001	535	0.038	675	0.015
400	0.001	540	0.039	680	0.013
405	0.001	545	0.040	685	0.011
410	0.001	550	0.041	690	0.010
415	0.002	555	0.042	695	0.008
420	0.003	560	0.043	700	0.007
425	0.005	565	0.045	705	0.006
430	0.009	570	0.046	710	0.005
435	0.015	575	0.047	715	0.004
440	0.024	580	0.048	720	0.004
445	0.041	585	0.049	725	0.003
450	0.058	590	0.049	730	0.003
455	0.047	595	0.049	735	0.002
460	0.029	600	0.049	740	0.002
465	0.024	605	0.049	745	0.002
470	0.018	610	0.048	750	0.001
475	0.014	615	0.046	755	0.001
480	0.013	620	0.044	760	0.001
485	0.015	625	0.042	765	0.001
490	0.017	630	0.039	770	0.001
495	0.021	635	0.036	775	0.001
500	0.024	640	0.033	780	0.001
505	0.028	645	0.030		
510	0.030	650	0.027		

Dialight OPTICS LABORATORY

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Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L17007.
Dialight unit model number ALC7AN23-xxxxx-N

Electrical Measurements:

Input Voltage:	120	(VAC)
Input current:	0.201	(A)
Input Power:	23.9	(W)
Power Factor:	0.992	

Photometric measurements:

Absolute Luminous Flux:	2946	(lumens)
Luminous Efficacy:	123.1	(lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY

ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	1436	1436	1436	1436	1436	
5	1407	1416	1423	1447	1461	53
15	1460	1456	1464	1461	1466	301
25	1641	1606	1513	1342	1336	506
35	1680	1677	1557	1261	1186	610
45	1212	1325	1451	1185	998	625
55	364	542	935	1045	760	504
65	15	22	178	670	444	267
75	6	8	8	52	100	73
85	0	0	1	1	2	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	

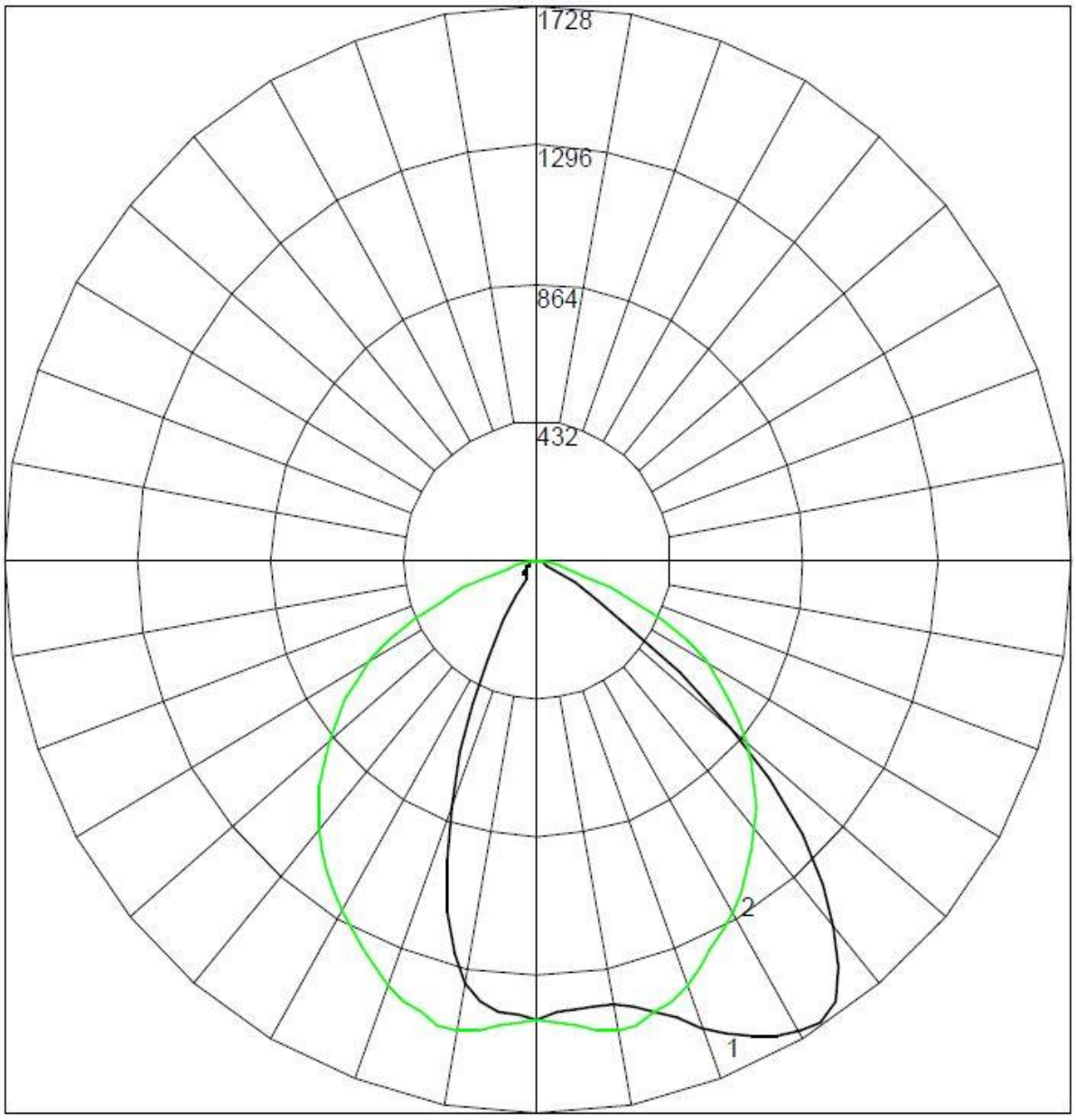
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	1157.4	39.3%
0-40	1787.57	60.7%
0-60	2763.33	93.8%
60-90	256.23	8.7%
0-90	2945.1	100.0%
90-180	0	0.0%
0-180	2945.1	100.0%

Test Results: Goniometer

Results continued from previous page.

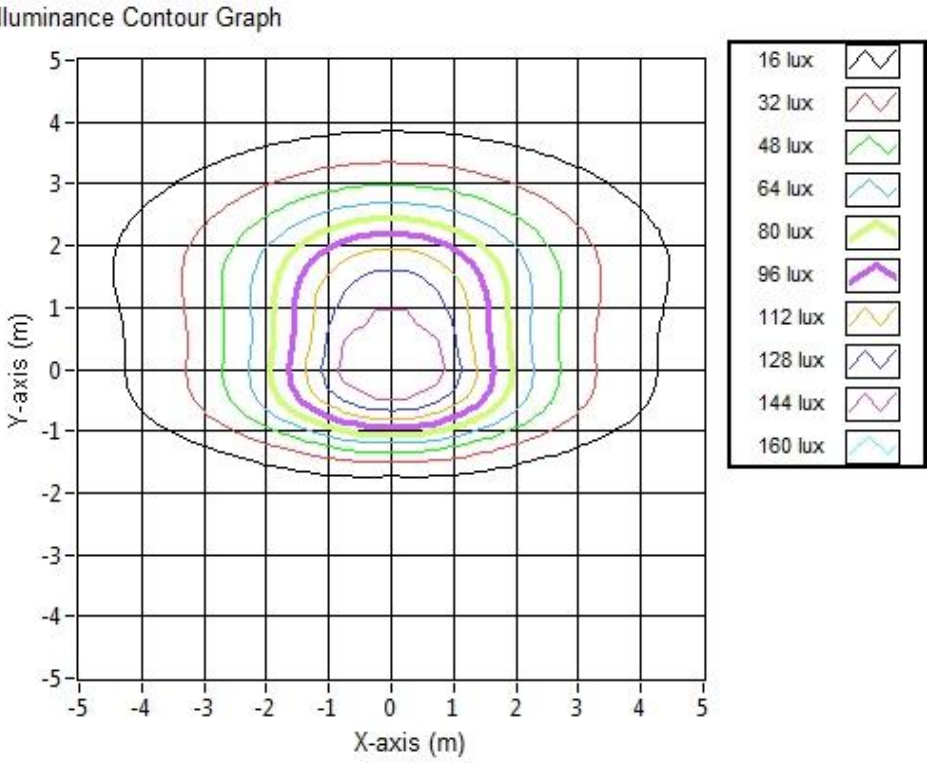
Polar Plot:



Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	4.97	9.24	154.6
6.096	9.95	18.49	38.6
9.144	14.92	27.73	17.2
12.192	19.90	36.98	9.7
15.24	24.87	46.22	6.2
18.288	29.85	55.47	4.3
21.336	34.82	64.71	3.2
24.384	39.80	73.96	2.4
27.432	44.77	83.20	1.9
30.48	49.75	92.44	1.5

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L17007.
Dialight unit model number ALC7AN23-xxxxx-N

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 50 (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:

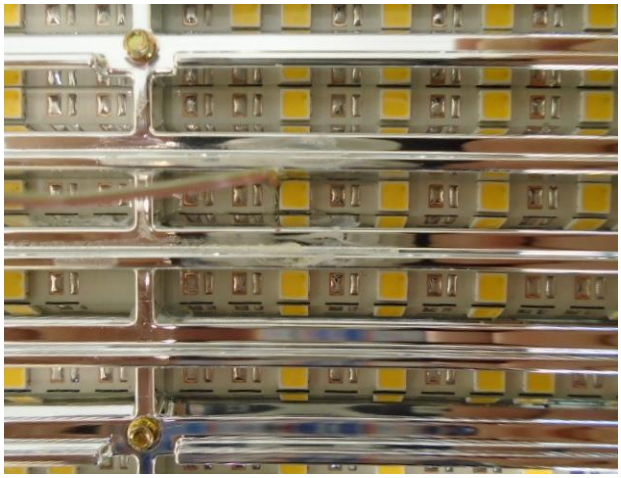
Maximum Power at Indicated Current:	0.3	(W)
Maximum Source Temperature:	119.9	(°C)

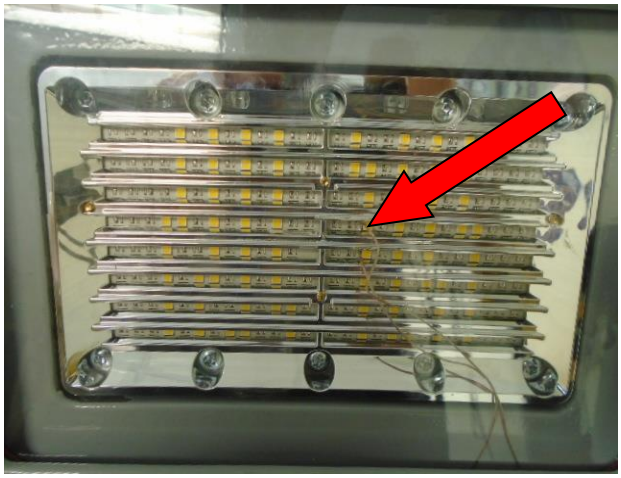
Test Conditions:

Temperature Measurement Location:	See Photographs Below	
Ambient Temperature:	25° ± 5‘	(°C)
Ambient temperature at time of measurement:	23.7	(°C)
Relative humidity at time of measurement:	15%	

Results:

Measured LED source temperature: 42.3 (°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 Precison	1715A
TDK-Lambda	GEN1500W
Fluke 8808A Digit Multimeter	8808A
TPI Digitial Thermometer 343	TPI 343
TPI Digitial 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.

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