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
• 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:

<table>
<thead>
<tr>
<th></th>
<th>Integrating Sphere</th>
<th>Goniophotometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luminous Flux:</td>
<td>8508 (lumens)</td>
<td>8578 (lumens)</td>
</tr>
<tr>
<td>Electrical Power:</td>
<td>66.5 (W)</td>
<td>65.8 (W)</td>
</tr>
<tr>
<td>Luminous Efficacy:</td>
<td>129.1 (lumens/W)</td>
<td>130.3 (lumens/W)</td>
</tr>
</tbody>
</table>

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 ± 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

![Spectral Power in Visible Range](image-url)
Test Results: Integrating Sphere
Results continued from previous page.

Tabulated Spectral Power in Visible Range:

<table>
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<tr>
<th>λ(nm)</th>
<th>(W/nm)</th>
<th>λ(nm)</th>
<th>(W/nm)</th>
<th>λ(nm)</th>
<th>(W/nm)</th>
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<tbody>
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## 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:

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<tr>
<th>ANGLE</th>
<th>ALONG</th>
<th>25</th>
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<th>72.5</th>
<th>ACROSS</th>
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<table>
<thead>
<tr>
<th>ZONE</th>
<th>LUMENS</th>
<th>% LUMINAIRE</th>
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<tbody>
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<td>0-30</td>
<td>3080.66</td>
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<td>5027.19</td>
<td>58.6%</td>
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<td>8063.77</td>
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<td>0-90</td>
<td>8576.9</td>
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<tr>
<td>0-180</td>
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<td>100.0%</td>
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Dialight Optics Laboratory
Report Number: L17013
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:

<table>
<thead>
<tr>
<th>Mounting Height (m)</th>
<th>Beam Cone Width (m)</th>
<th>Orthogonal Beam Cone Width (m)</th>
<th>Projected Illuminance (lux)</th>
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<tbody>
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<td>30.48</td>
<td>92.98</td>
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<td>3.6</td>
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</table>
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° ± 5 (°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:

<table>
<thead>
<tr>
<th>Equipment Name</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
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<td>Omega TC</td>
<td>Dpi8</td>
</tr>
<tr>
<td>Fluke 8808A Digit Multimeter</td>
<td>8808A</td>
</tr>
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<td>YOKOGAWA Digital Power Meter</td>
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<td>LSI High Speed Mirror Goniometer</td>
<td>6240T</td>
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<td>Instrument System 1.5 Meter Sphere</td>
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<tr>
<td>Volttech Power Analyzer</td>
<td>PM1000+</td>
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<td>Delta Elektronika DC Power Supply</td>
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<td>XHR150-7</td>
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<td>Fluke 971 Humidity Meter</td>
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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.
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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