

# Test Report

Report Number: L14061

Date: Sep 19, 2014

Issued by:

Dialight Optics Laboratory  
1501 Route 34 South, Farmingdale, NJ 07727

Test of one Vigilant Highbay fixture  
Unit manufacturer: Dialight Corporation  
Unit model number: HELMC4GN-xxx

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:** September 18, 2014 through September 19, 2014

**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

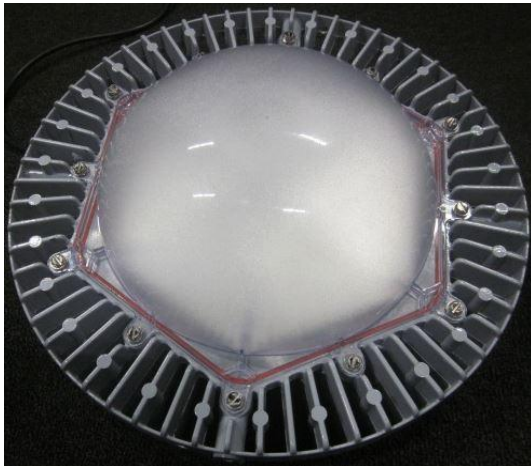
**Description of sample:**

Sample Number: L14061  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Highbay  
Description: Vigilant Highbay Fixture With Polycarbonate Dome Lens  
Model Number: HELMC4GN-xxx

## Report Summary

Sample number L14061  
Dialight unit model number HELMC4GN-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	12840 (lumens)	12911 (lumens)
Electrical Power:	113.5 (W)	113.5 (W)
Luminous Efficacy:	113.1 (lumens/W)	113.8 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 113.5 (W)  
Power Factor (120VAC): 0.993  
Current ATHD % (120VAC): 9.052  
Input Power (277VAC): 111.8 (W)  
Power Factor (277VAC): 0.983  
Current ATHD % (277VAC): 16.01

### Color Measurements:

Correlated Color Temperature (CCT): 4932  
Color Rendering Index (CRI): 78.8  
Chromaticity Coordinate (x): 0.347  
Chromaticity Coordinate (y): 0.356  
Chromaticity Coordinate (u'): 0.211  
Chromaticity Coordinate (v'): 0.325  
DUV: 0.0013

### Temperature Measurements:

In Situ LED Source Temperature: 46.5 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14061.

Dialight unit model number HELMC4GN-xxx

### Test Conditions:

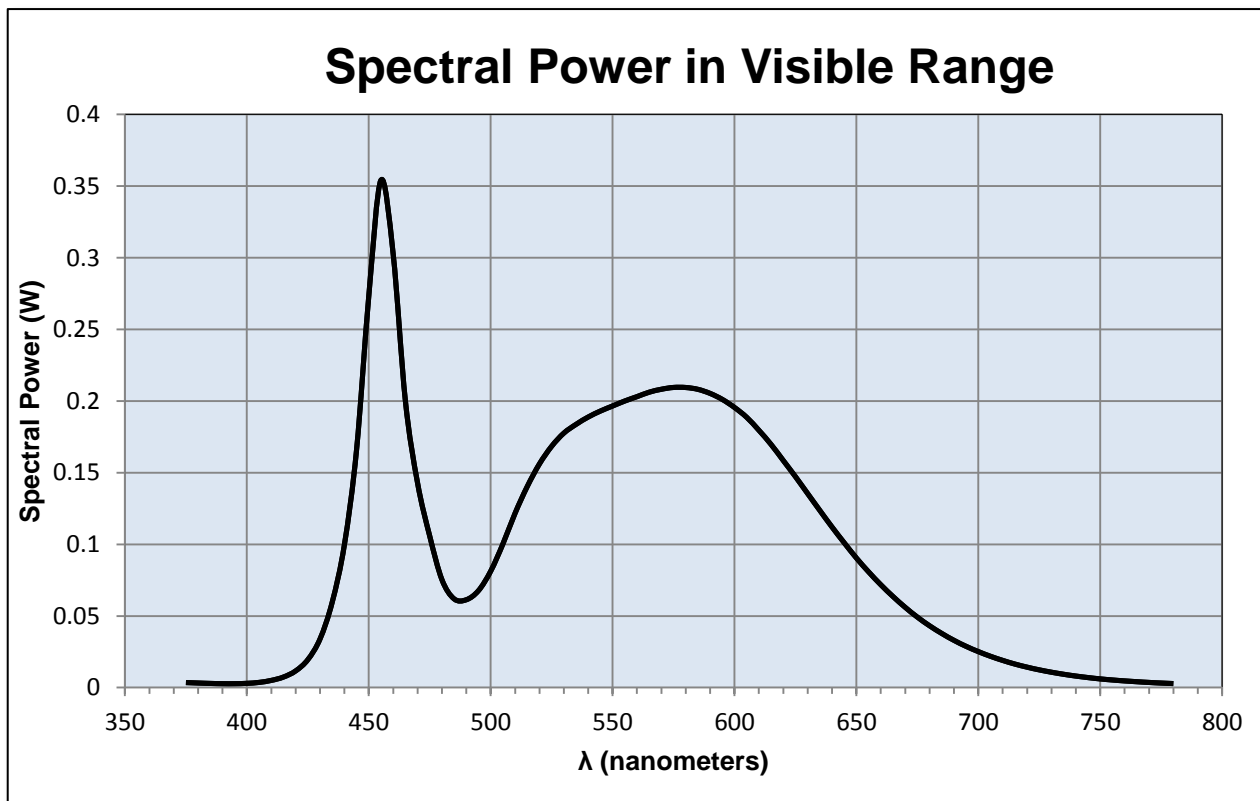
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
 Input Current: 0.95 (A)  
 Input Power: 113.5 (W)  
 Input Power Factor: 0.993  
 Current ATHD: 9.052 (%)

### Photometric measurements:

Luminous Flux: 12840 (lumens)  
 Luminous Efficacy: 113.1 (lumens/W)  
 Correlated Color Temperature (CCT): 4932 (K)  
 CRI -Ra: 78.8  
 CRI -R9: -4.4  
 DUV: 0.0013  
 CIE Coordinate (x): 0.347  
 CIE Coordinate (y): 0.356  
 CIE Coordinate (u'): 0.211  
 CIE Coordinate (v'): 0.325



## Test Results: Integrating Sphere

Results continued from previous page.

### Tabulated Spectral Power in Visible Range:

$\lambda$ (nm)	(W/nm)	$\lambda$ (nm)	(W/nm)	$\lambda$ (nm)	(W/nm)
375	0.004	515	0.14	655	0.081
380	0.003	520	0.156	660	0.072
385	0.003	525	0.168	665	0.064
390	0.003	530	0.178	670	0.056
395	0.003	535	0.184	675	0.049
400	0.003	540	0.189	680	0.043
405	0.004	545	0.193	685	0.038
410	0.005	550	0.197	690	0.033
415	0.007	555	0.2	695	0.029
420	0.012	560	0.203	700	0.025
425	0.02	565	0.206	705	0.022
430	0.034	570	0.208	710	0.019
435	0.06	575	0.21	715	0.016
440	0.1	580	0.209	720	0.014
445	0.166	585	0.208	725	0.012
450	0.273	590	0.205	730	0.011
455	0.354	595	0.201	735	0.009
460	0.303	600	0.196	740	0.008
465	0.2	605	0.189	745	0.007
470	0.143	610	0.18	750	0.006
475	0.106	615	0.17	755	0.005
480	0.075	620	0.159	760	0.005
485	0.062	625	0.147	765	0.004
490	0.061	630	0.135	770	0.004
495	0.068	635	0.124	775	0.003
500	0.081	640	0.112	780	0.003
505	0.1	645	0.101		
510	0.122	650	0.09		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14061.  
Dialight unit model number HELMC4GN-xxx

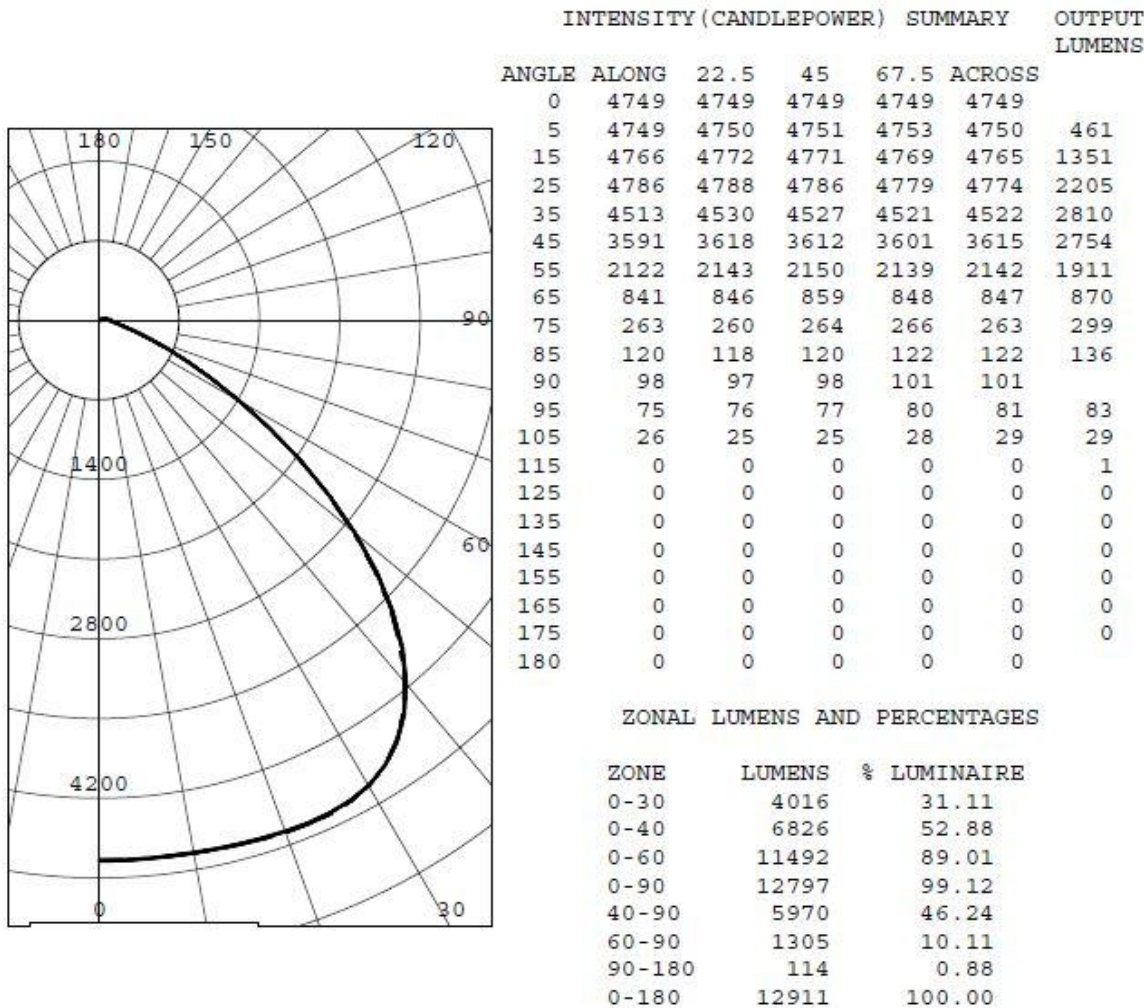
### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.952 (A)  
Input Power: 113.5 (W)  
Power Factor: 0.993

### Photometric measurements:

Absolute Luminous Flux: 12911 (lumens)  
Luminous Efficacy: 113.8 (lumens/W)

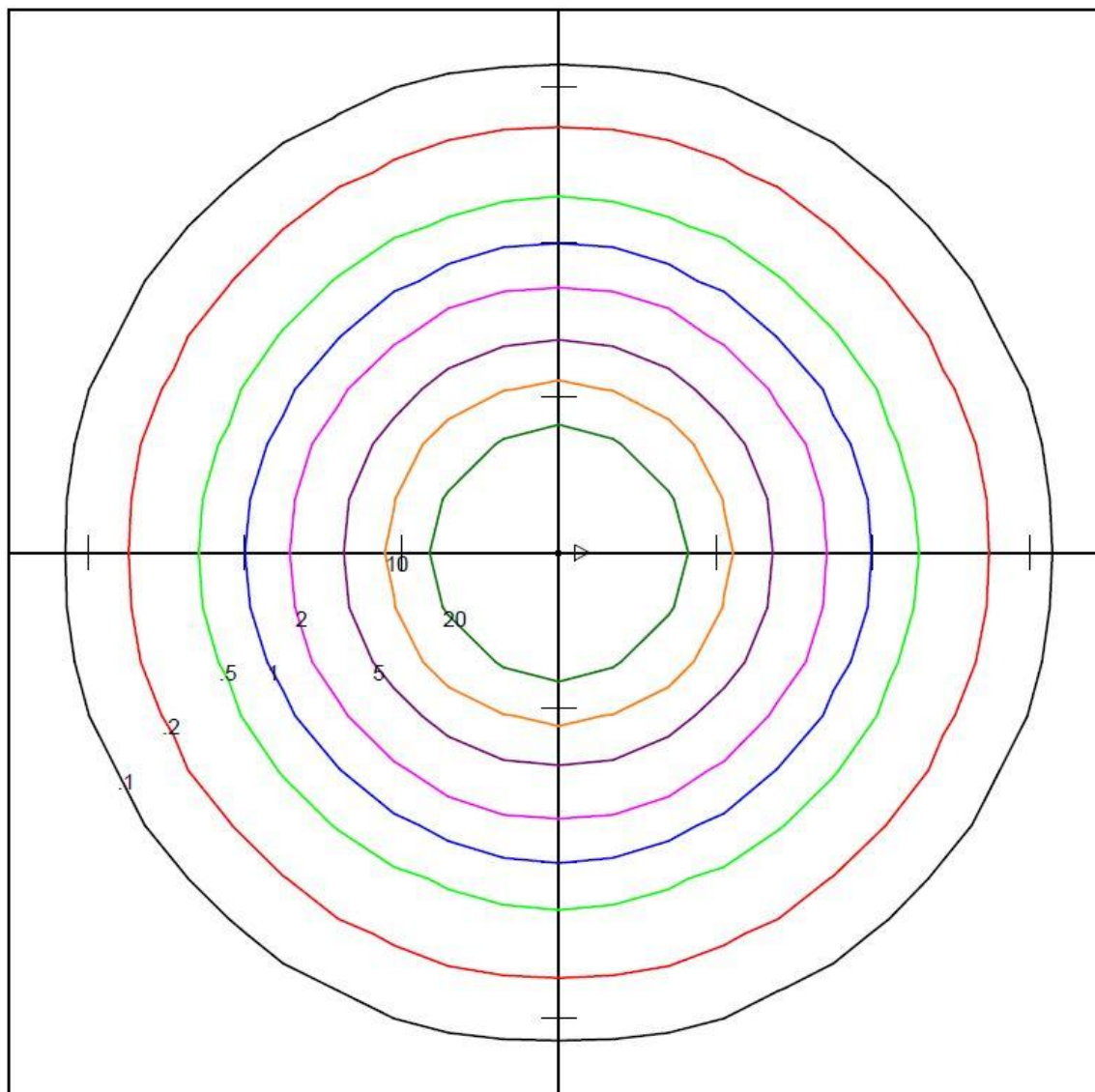
### Intensity Summary:



### Test Results: Goniometer

Results continued from previous page.

#### Iso-illuminance Plot:



DIALIGHT COPORATION  
HELMC4GN  
MOD: HELMC4GN  
LED

Horizontal Footcandles  
Scale: 1 Inch = 10 Ft.  
Light Loss Factor = 1.00  
Lumens Per Lamp = N.A. (absolute photometry)  
Luminaire Lumens = 12926  
Mounting Height = 10.00 Ft  
Maximum Calculated Value = 47.49 Fc  
Arrangement: Single

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14061.

Dialight unit model number HELMC4GN-xxx

LED identified as NICHIA part number NT2W757DT.

LED drive current (as indicated by customer): 100 (mA)

### LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If): 300 (mA)  
Maximum Rated Power Dissipation: 1.05 (W)  
Maximum Junction Temp. (Tj): 120 (°C)  
Thermal Resistance (Rth): 18 (°C/W)

### Derived Specifications:

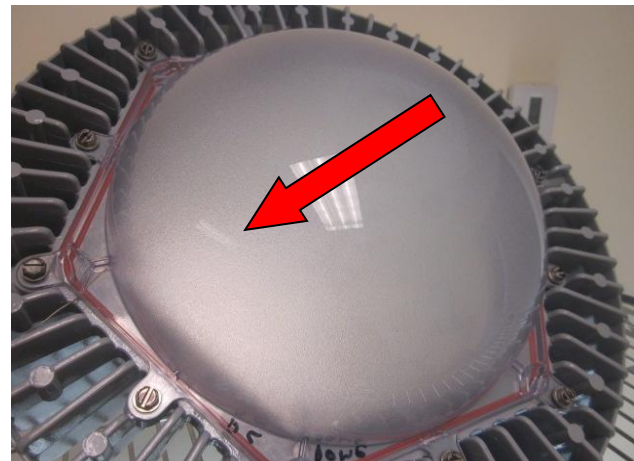
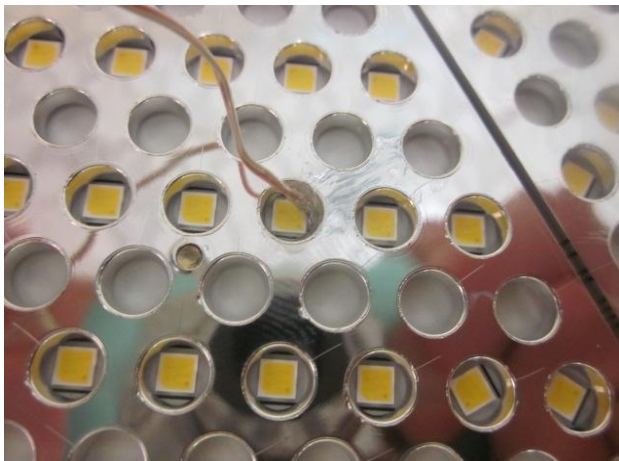
Maximum Power at Indicated Current: 0.35 (W)  
Maximum Source Temperature: 113.7 (°C) ( Tj - [power dissipation \* Rth] )

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 1^{\circ}$  (°C)  
Ambient temperature at time of measurement: 24.1 (°C)  
Relative humidity at time of measurement: 41%

### Results:

Measured LED source temperature: 46.5 (°C)



**Equipment Used:**

Equipment Name	Model Number	Calibration Due Date
Omega TC	Dpi8	3/7/2015
Fluke 8808A Digit Multimeter	8808A	4/7/2015
YOKOGAWA Digital Power Meter	760401	4/7/2015
LSI Standard Lamps	#30279	4/17/2015
LSI High Speed Mirror Goniometer	6240T	-
Instrument System Spectrometer	CAS140B-151	-
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System 1.5 Meter Sphere	ISP1500	-
Volttech Power Analyzer	PM1000+	4/17/2015
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	-
Extech Hygro-Thermometer	445703	-
Extech Hygro-Thermometer	445703	-
Fluke 52II Thermometer	52II Thermometer	3/6/2015
Volttech Power Analyzer	PM1000+	4/17/2015
Tenma AC Power Source	72-7675	-
BK Precision	1715A	-
TDK-Lambda	GEN1500W	-
Fluke 8808A Digit Multimeter	8808A	4/14/2015
TPI Digital Thermometer 343	343	4/17/2015
TPI Digital Thermometer 343	343	4/17/2015

**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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Lighting Division

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Dialight Optics Laboratory  
Optical Engineering Manager  
Approved Signatory