

# Test Report

Report Number: L14065

Date: Sep 30, 2014

Issued by:

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

Test of one Vigilant Highbay Fixture With Ultra Clear Polycarbonate Lens  
Unit manufacturer: Dialight Corporation  
Unit model number: HE2MC4DN-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 29, 2014 through September 30, 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:**

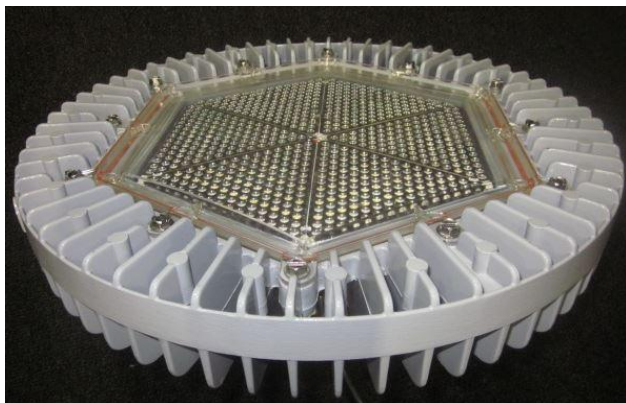
Sample Number: L14065  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Highbay  
Description: Vigilant Highbay Fixture With Ultra Clear Polycarbonate Lens  
Model Number: HE2MC4DN-xxx

## Report Summary

Sample number L14065

Dialight unit model number HE2MC4DN-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	10820 (lumens)	10649 (lumens)
Electrical Power:	89.0 (W)	89.1 (W)
Luminous Efficacy:	121.6 (lumens/W)	119.5 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 89.0 (W)  
 Power Factor (120VAC): 0.99  
 Current ATHD % (120VAC): 10.38  
 Input Power (277VAC): 88.1 (W)  
 Power Factor (277VAC): 0.913  
 Current ATHD % (277VAC): 19.42

### Color Measurements:

Correlated Color Temperature (CCT): 4836  
 Color Rendering Index (CRI): 77.9  
 Chromaticity Coordinate (x): 0.35  
 Chromaticity Coordinate (y): 0.36  
 Chromaticity Coordinate (u'): 0.212  
 Chromaticity Coordinate (v'): 0.326  
 DUV: 0.0019

### Temperature Measurements:

In Situ LED Source Temperature: 41.2 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14065.

Dialight unit model number HE2MC4DN-xxx

### Test Conditions:

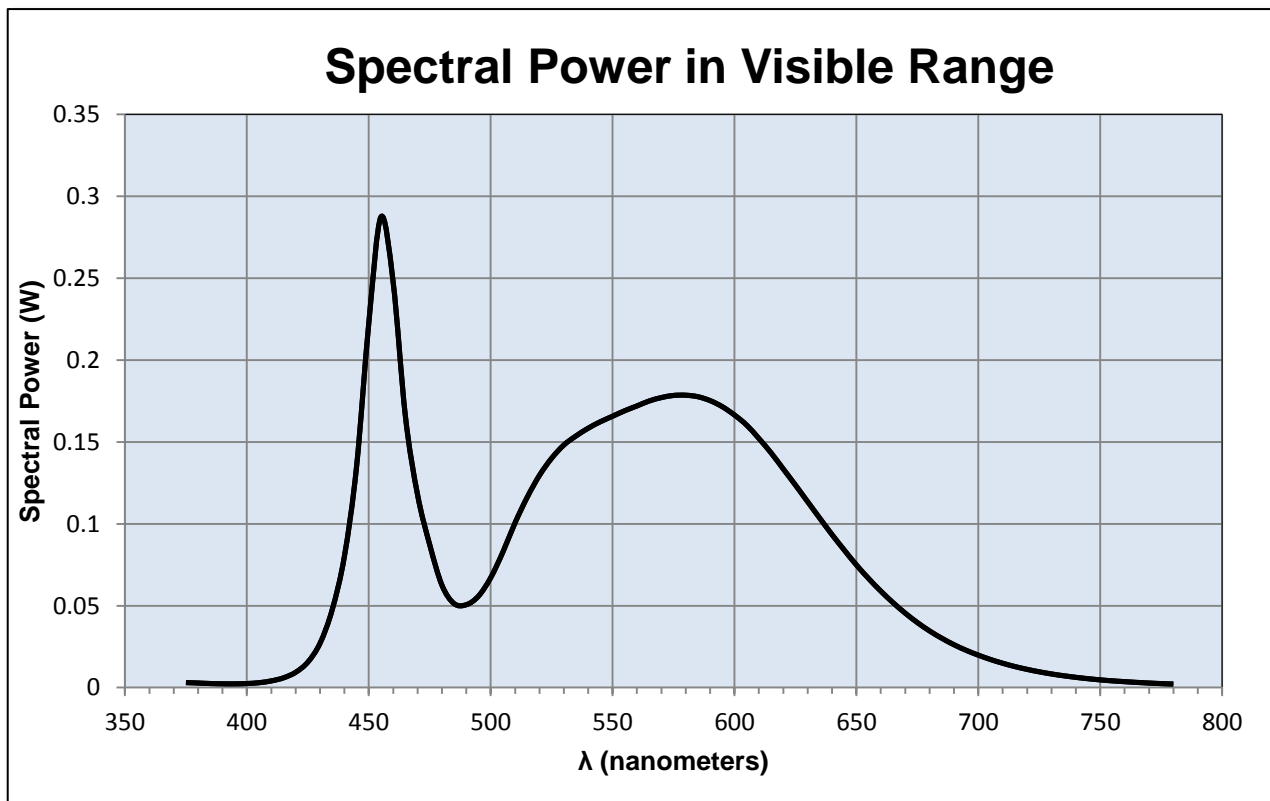
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
 Input Current: 0.746 (A)  
 Input Power: 89.0 (W)  
 Input Power Factor: 0.99  
 Current ATHD: 10.38 (%)

### Photometric measurements:

Luminous Flux: 10820 (lumens)  
 Luminous Efficacy: 121.6 (lumens/W)  
 Correlated Color Temperature (CCT): 4836 (K)  
 CRI -Ra: 77.9  
 CRI -R9: -9.6  
 DUV: 0.0019  
 CIE Coordinate (x): 0.35  
 CIE Coordinate (y): 0.36  
 CIE Coordinate (u'): 0.212  
 CIE Coordinate (v'): 0.326



## 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	0.003	515	0.116	655	0.067
380	0.003	520	0.13	660	0.059
385	0.002	525	0.14	665	0.052
390	0.002	530	0.148	670	0.046
395	0.002	535	0.154	675	0.04
400	0.002	540	0.158	680	0.035
405	0.003	545	0.162	685	0.03
410	0.004	550	0.166	690	0.026
415	0.006	555	0.169	695	0.023
420	0.009	560	0.172	700	0.02
425	0.016	565	0.175	705	0.017
430	0.027	570	0.177	710	0.015
435	0.048	575	0.178	715	0.013
440	0.08	580	0.179	720	0.011
445	0.135	585	0.178	725	0.01
450	0.223	590	0.175	730	0.008
455	0.287	595	0.172	735	0.007
460	0.248	600	0.166	740	0.006
465	0.166	605	0.16	745	0.005
470	0.118	610	0.152	750	0.005
475	0.087	615	0.143	755	0.004
480	0.063	620	0.134	760	0.004
485	0.051	625	0.124	765	0.003
490	0.051	630	0.114	770	0.003
495	0.056	635	0.103	775	0.002
500	0.067	640	0.093	780	0.002
505	0.083	645	0.084		
510	0.101	650	0.075		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14065.  
Dialight unit model number HE2MC4DN-xxx

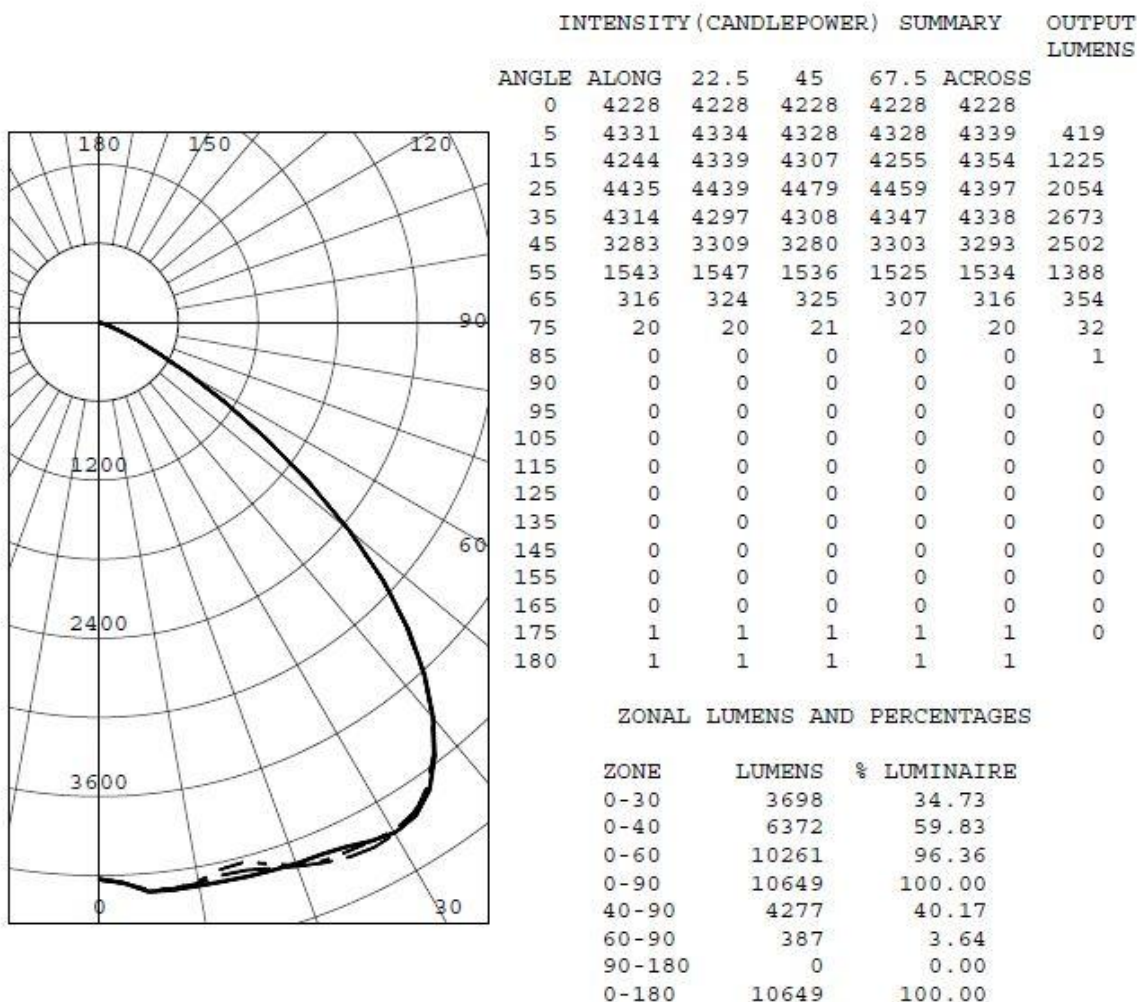
### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.749 (A)  
Input Power: 89.1 (W)  
Power Factor: 0.99

### Photometric measurements:

Absolute Luminous Flux: 10649 (lumens)  
Luminous Efficacy: 119.5 (lumens/W)

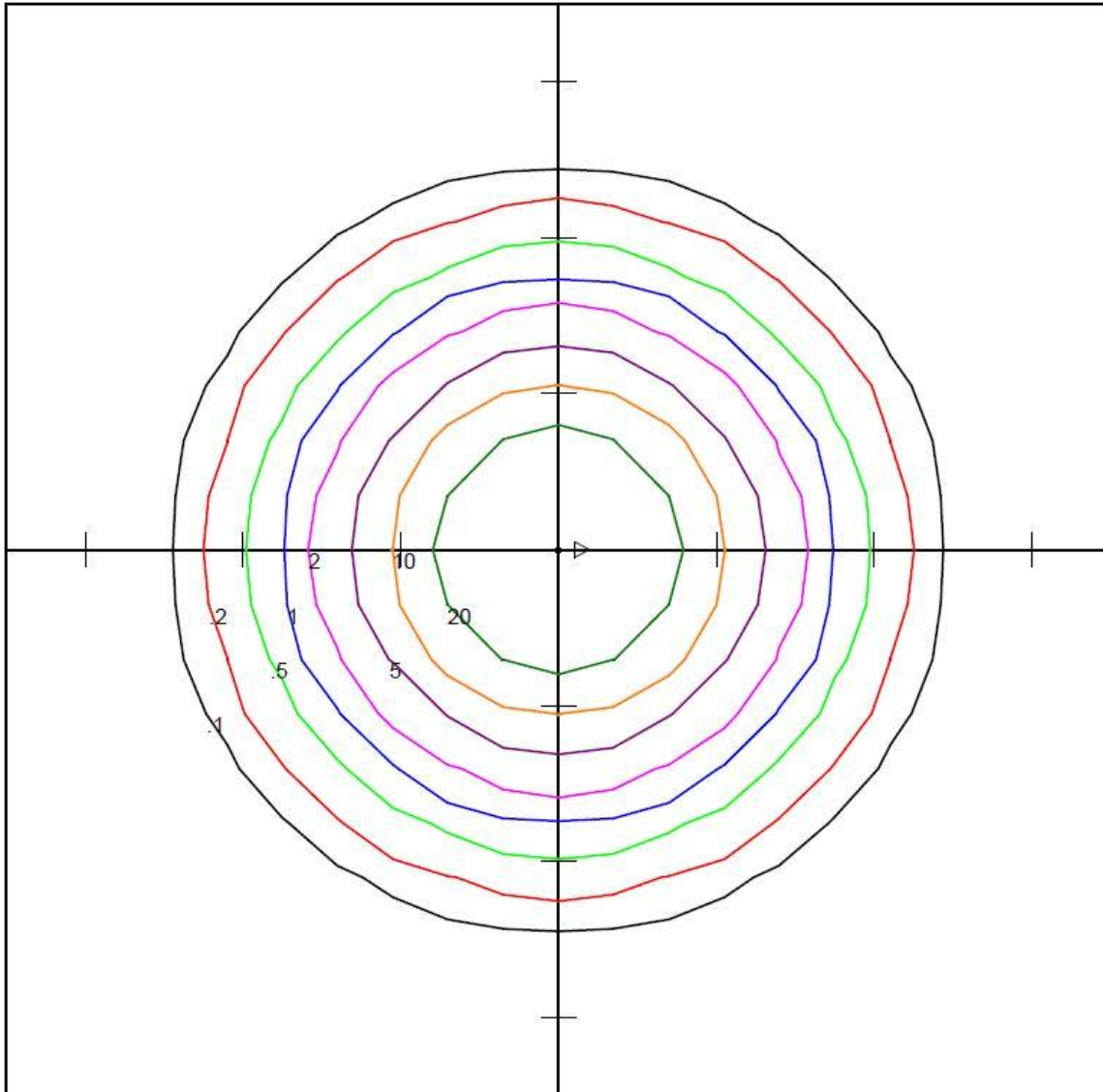
### Intensity Summary:



## Test Results: Goniometer

Results continued from previous page.

### Iso-illuminance Plot:



DIALIGHT COPORATION  
HE2MC4DN-xxx  
MOD: HE2MC4DN-xxx  
LED

Horizontal Footcandles  
Scale: 1 Inch = 10 Ft.  
Light Loss Factor = 1.00  
Lumens Per Lamp = N.A. (absolute photometry)  
Luminaire Lumens = 10662  
Mounting Height = 10.00 Ft  
Maximum Calculated Value = 42.28 Fc  
Arrangement: Single

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14065.

Dialight unit model number HE2MC4DN-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:

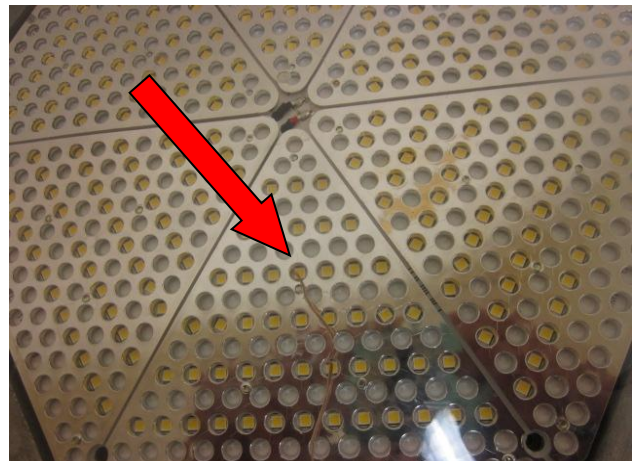
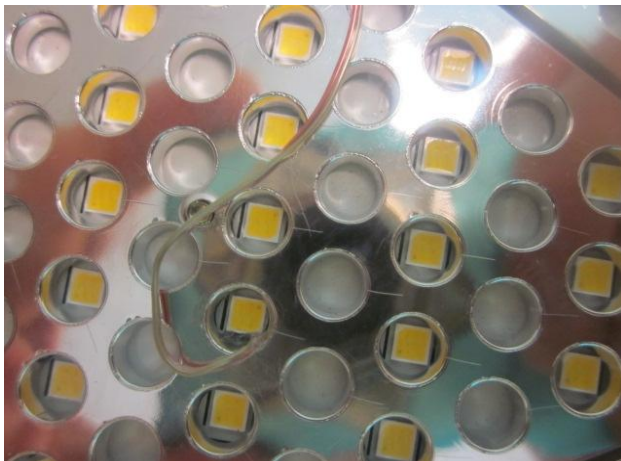
Maximum Power at Indicated Current: 0.35 (W)  
Maximum Source Temperature: 113.7 (°C)

### 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: 49%

### Results:

Measured LED source temperature: 41.2 (°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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Approved Signatory