

# Test Report

Report Number: L15026

Date: Mar 20, 2015

Issued by:

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

Test of one Vigilant Highbay With Glass Lens  
Unit manufacturer: Dialight Corporation  
Unit model number: HEGEC4GN-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:** March 18, 2015 through March 20, 2015

**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):

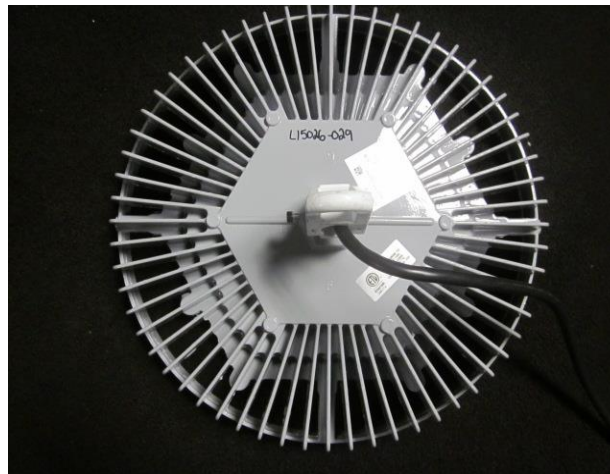
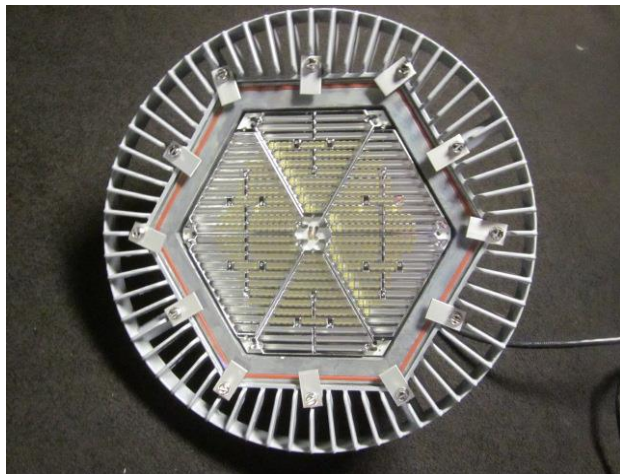
- IES LM-79:2008: Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI/UL 1598:2008: Underwriters Laboratories Inc. Standard for Safety: Luminaires
- ENERGY STAR Manufacturer's Guide for Qualifying Solid State Lighting Luminaires Version 2.1

**Description of sample:**

Sample Number: L15026  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Highbay  
Description: Vigilant Highbay With Glass Lens  
Model Number: HEGEC4GN-xxx

**Report Summary**  
Sample number L15026  
Dialight unit model number HEGEC4GN-xxx

**Photograph(s) of sample:**



\*Photographs not to scale. For reference only.

**Summary of Results:**

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	14570 (lumens)	14416 (lumens)
Electrical Power:	111.6 (W)	111.9 (W)
Luminous Efficacy:	130.5 (lumens/W)	128.8 (lumens/W)

**Electrical Measurements:**

Input Power (120VAC): 111.6 (W)  
 Power Factor (120VAC): 0.993  
 Current ATHD % (120VAC): 8.679  
 Input Power (277VAC): 110.0 (W)  
 Power Factor (277VAC): 0.937  
 Current ATHD % (277VAC): 15.28

**Color Measurements:**

Correlated Color Temperature (CCT): 4944  
 Color Rendering Index (CRI): 77.7  
 Chromaticity Coordinate (x): 0.347  
 Chromaticity Coordinate (y): 0.356  
 Chromaticity Coordinate (u'): 0.211  
 Chromaticity Coordinate (v'): 0.325  
 DUV: 0.0014

**Temperature Measurements:**

In Situ LED Source Temperature: 47.5 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15026.  
Dialight unit model number HEGEC4GN-xxx

### Test Conditions:

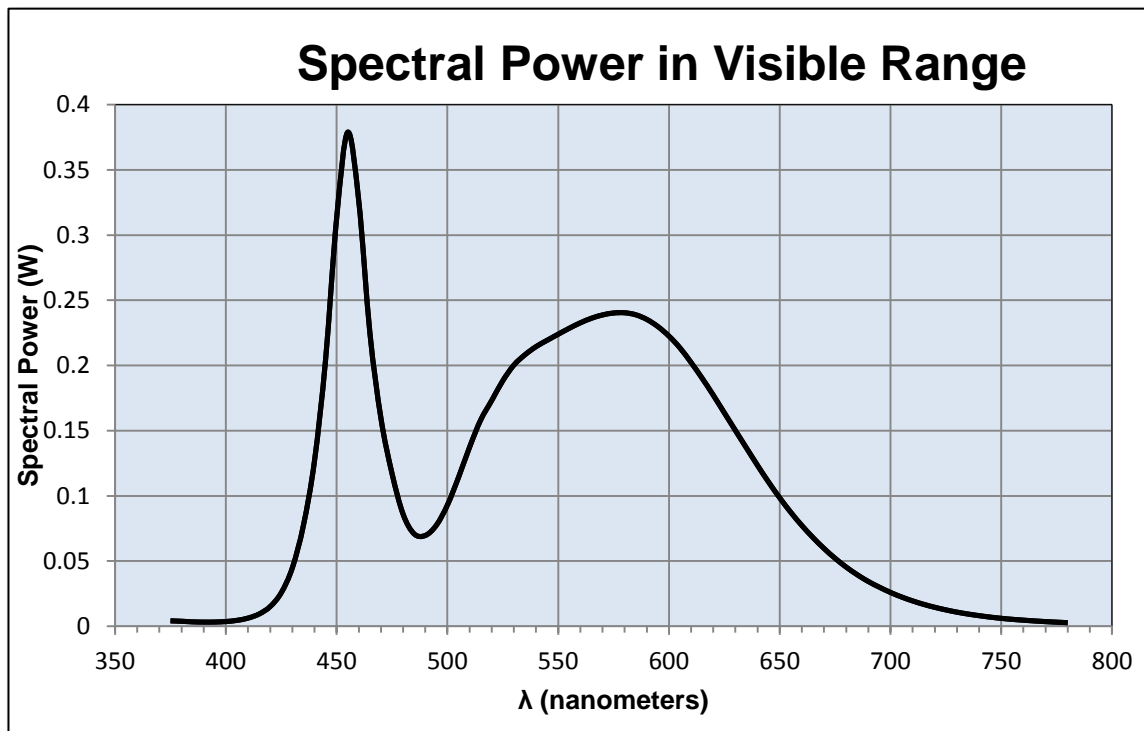
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 0.936 (A)  
Input Power: 111.6 (W)  
Input Power Factor: 0.993  
Current ATHD: 8.679 (%)

### Photometric measurements:

Luminous Flux: 14570 (lumens)  
Luminous Efficacy: 130.5 (lumens/W)  
Correlated Color Temperature (CCT): 4944 (K)  
CRI -Ra: 77.7  
CRI -R9: -10.7  
DUV: 0.0014  
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:

$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)
375	0.004	515	0.158	655	0.087
380	0.004	520	0.173	660	0.077
385	0.003	525	0.188	665	0.068
390	0.003	530	0.2	670	0.06
395	0.003	535	0.208	675	0.052
400	0.004	540	0.214	680	0.045
405	0.005	545	0.219	685	0.04
410	0.006	550	0.224	690	0.034
415	0.009	555	0.229	695	0.03
420	0.015	560	0.233	700	0.026
425	0.026	565	0.236	705	0.022
430	0.045	570	0.239	710	0.019
435	0.077	575	0.24	715	0.017
440	0.127	580	0.24	720	0.015
445	0.204	585	0.239	725	0.013
450	0.313	590	0.235	730	0.011
455	0.379	595	0.23	735	0.009
460	0.326	600	0.223	740	0.008
465	0.225	605	0.213	745	0.007
470	0.159	610	0.202	750	0.006
475	0.117	615	0.19	755	0.005
480	0.086	620	0.177	760	0.005
485	0.071	625	0.164	765	0.004
490	0.07	630	0.15	770	0.004
495	0.077	635	0.137	775	0.003
500	0.093	640	0.123	780	0.003
505	0.114	645	0.11		
510	0.137	650	0.098		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15026.  
Dialight unit model number HEGEC4GN-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.935 (A)  
Input Power: 111.9 (W)  
Power Factor: 0.993

### Photometric measurements:

Absolute Luminous Flux: 14416 (lumens)  
Luminous Efficacy: 128.8 (lumens/W)

### Intensity Summary:

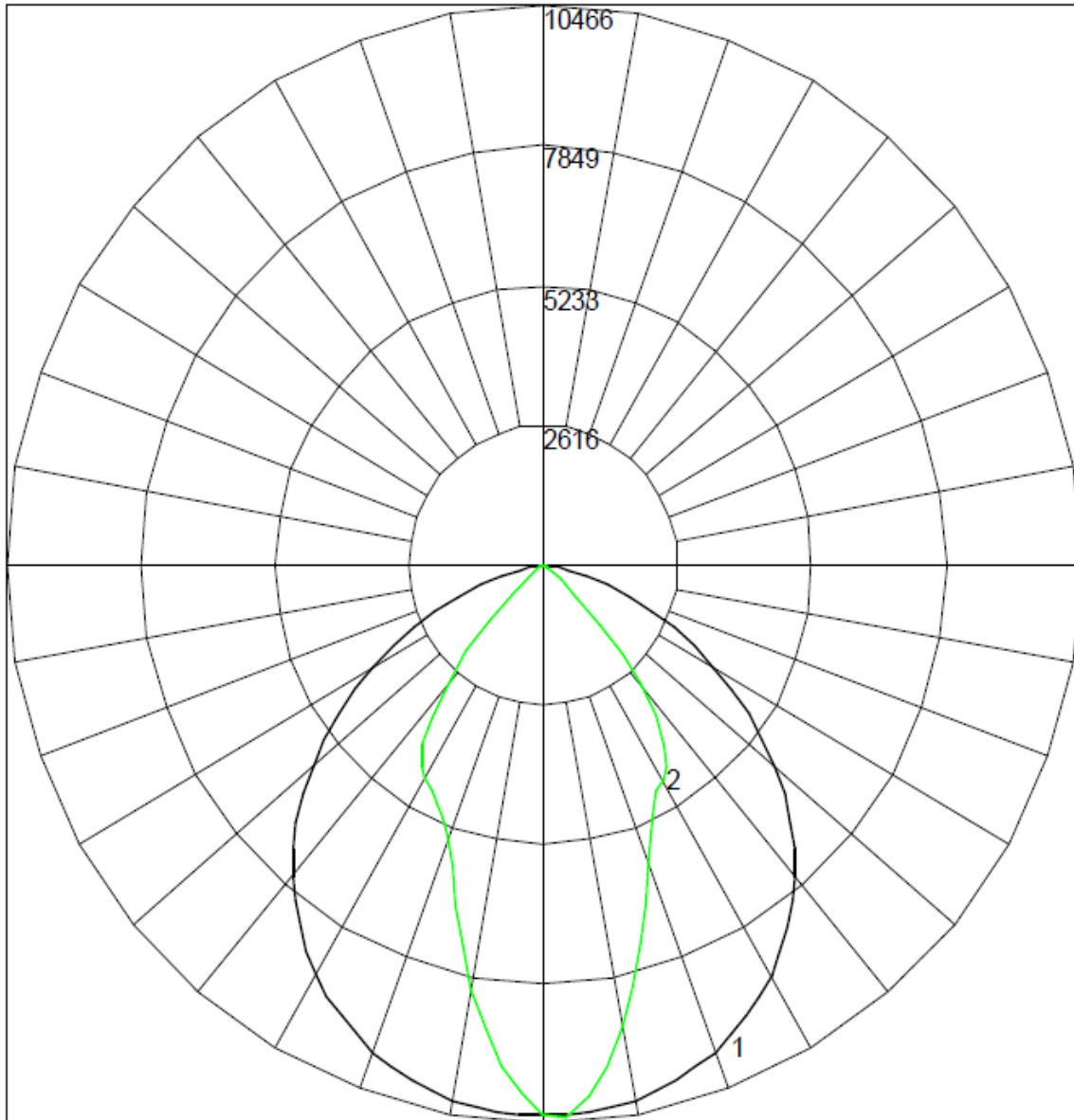
<b>INTENSITY (CANDLEPOWER) SUMMARY</b>						
ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	10334	10334	10334	10334	10334	
5	9999	10053	10161	10412	10306	377
15	7373	7711	8461	9602	10009	1894
25	5051	5325	6148	8106	9352	2800
35	4104	4363	4497	6265	8296	3215
45	1564	2244	3488	4330	6810	3003
55	87	191	1198	2863	4856	1913
65	3	51	105	1292	2813	915
75	0	3	3	38	869	277
85	0	0	0	0	0	22
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

<b>ZONAL LUMEN AND PERCENTAGES</b>		
ZONE	LUMENS	% LUMINAIRE
0-30	6647.41	46.1%
0-40	9880.67	68.5%
0-60	13761.69	95.5%
60-90	906.27	6.3%
0-90	14415.97	100.0%
90-180	0	0.0%
0-180	14415.97	100.0%

### Test Results: Goniometer

Results continued from previous page.

**Polar Plot:**

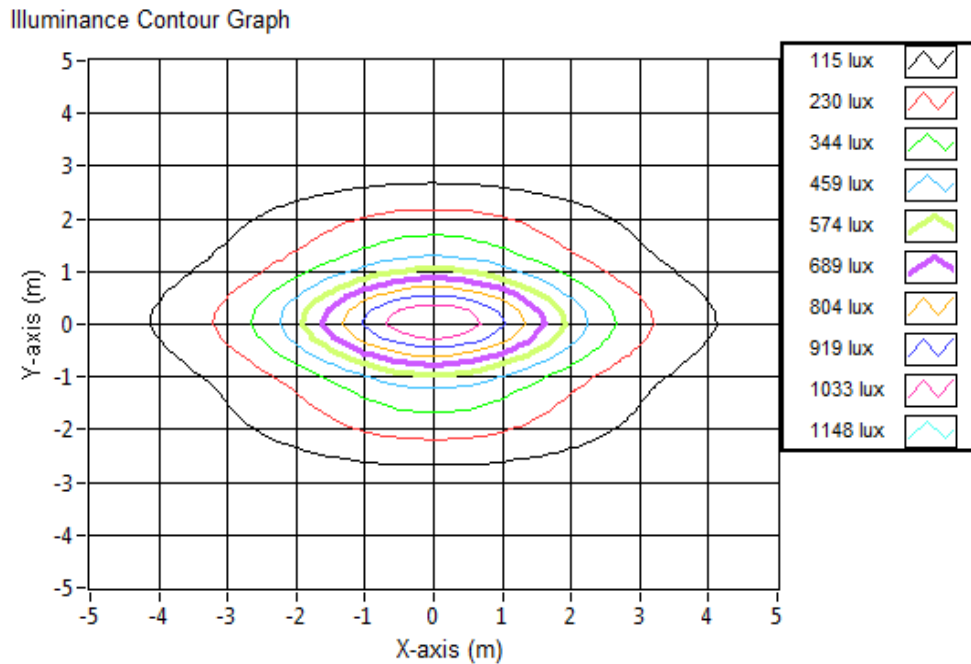




## Test Results: Goniometer

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	2.62	8.24	1112.3
6.096	5.23	16.49	278.1
9.144	7.85	24.73	123.6
12.192	10.46	32.97	69.5
15.24	13.08	41.21	44.5
18.288	15.69	49.46	30.9
21.336	18.31	57.70	22.7
24.384	20.93	65.94	17.4
27.432	23.54	74.18	13.7
30.48	26.16	82.43	11.1

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15026.  
Dialight unit model number HEGEC4GN-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:

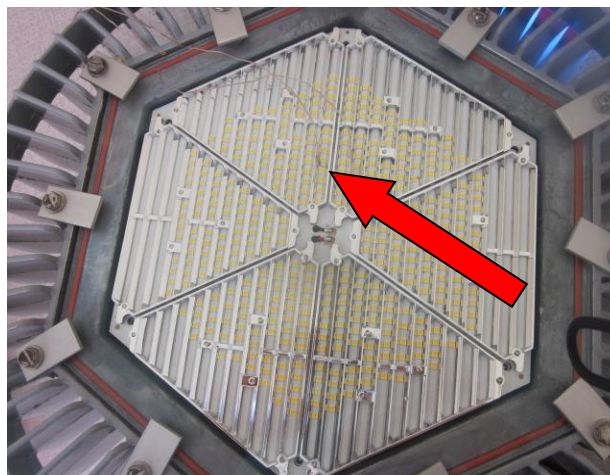
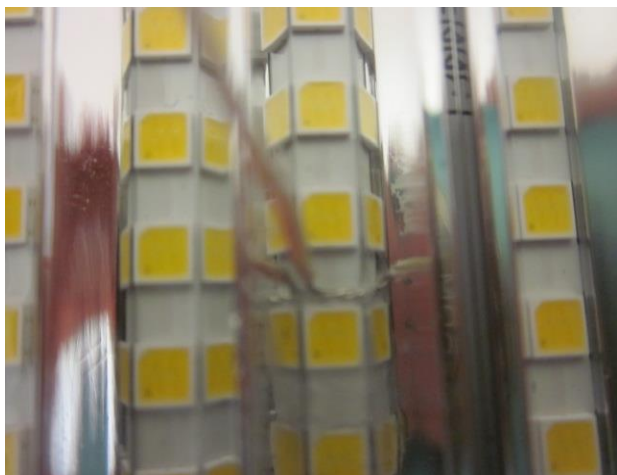
Maximum Power at Indicated Current: 0.35 (W)  
Maximum Source Temperature: 113.7 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 1^{\circ}$  (°C)  
Ambient temperature at time of measurement: 24.8 (°C)  
Relative humidity at time of measurement: 10%

### Results:

Measured LED source temperature: 47.5 (°C)





**Equipment Used:**

Equipment Name	Model Number
Omega TC	Dpi8
Fluke 8808A Digit Multimeter	8808A
YOKOGAWA Digital Power Meter	760401
LSI Standard Lamps	#30279
LSI High Speed Mirror Goniometer	6240T
Instrument System Spectrometer	CAS140B-151
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
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
Extech Hygro-Thermometer	445703
Extech Hygro-Thermometer	445703
Fluke 52II Thermometer	52II Thermometer
Volttech Power Analyzer	PM1000+
Tenma AC Power Source	72-7675
BK Precision	1715A
TDK-Lambda	GEN1500W
Fluke 8808A Digit Multimeter	8808A
TPI Digital Thermometer 343	TPI 343
TPI Digital Thermometer 343	TPI 343
Step-Up Transformer	
Omega TC	Dpi8-C24
Agilent True RMS OLED Multimeter	U1273A

**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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 Optical Engineer  
 Approved Signatory