Dialight
OPTICS LABORATORY

NVLAP Lab Code 201033-0

Test Report

Report Number: L15003 Date: Feb 4, 2015

Issued by:
Dialight Optics Laboratory
1501 Route 34 South, Farmingdale, NJ 07727

Test of one Vigilant Higbay Fixture With Acrylic Lens
Unit manufacturer: Dialight Corporation
Unit model number: HE1RN4DN-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: January 26, 2015 through February 3, 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:	L15003
Manufacturer:	Dialight Corporation
Product Name:	Vigilant High Bay
Description:	Vigilant Higbay Fixture With Acrylic Lens fixture
Model Number:	HE1RN4DN-xxx

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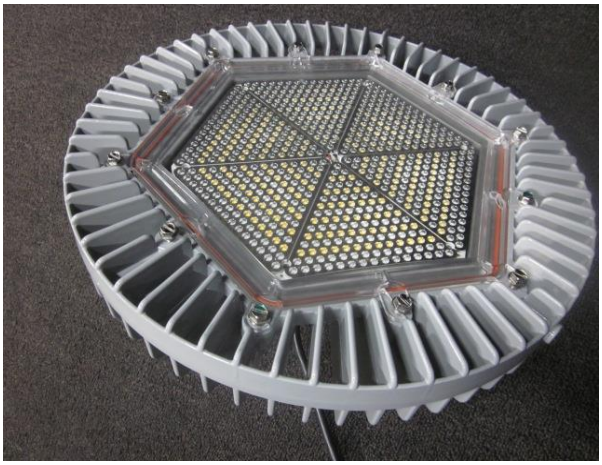
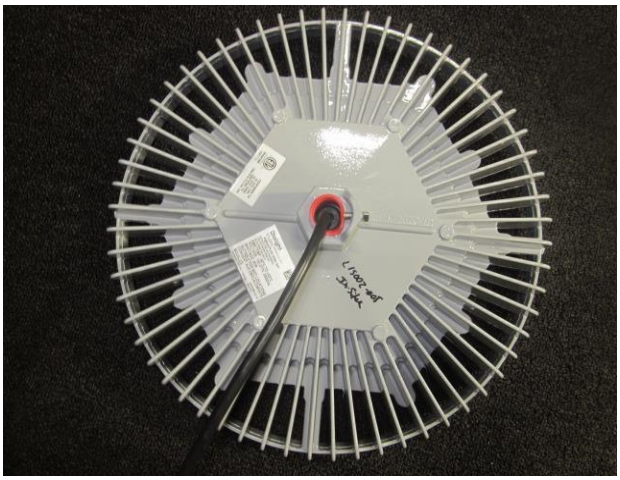
Report Summary

Sample number L15003

Dialight unit model number HE1RN4DN-xxx

Photograph(s) of sample:





*Photographs not to scale. For reference only.

Summary of Results:

	Integrating Sphere		Goniophotometer	
Luminous Flux:	10900	(lumens)	10866	(lumens)
Electrical Power:	89.7	(W)	89.8	(W)
Luminous Efficacy:	121.5	(lumens/W)	121	(lumens/W)

Electrical Measurements:

Input Power (120VAC):	89.7	(W)
Power Factor (120VAC):	0.99	
Current ATHD % (120VAC):	10.47	
Input Power (277VAC):	88.8	(W)
Power Factor (277VAC):	0.927	
Current ATHD % (277VAC):	17.44	

Color Measurements:

Correlated Color Temperature (CCT):	3855
Color Rendering Index (CRI):	73.3
Chromaticity Coordinate (x):	0.388
Chromaticity Coordinate (y):	0.382
Chromaticity Coordinate (u'):	0.228
Chromaticity Coordinate (v'):	0.337
DUV:	0.00058

Temperature Measurements:

In Situ LED Source Temperature:	41.1	(°C)

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Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15003.
Dialight unit model number HE1RN4DN-xxx

Test Conditions:

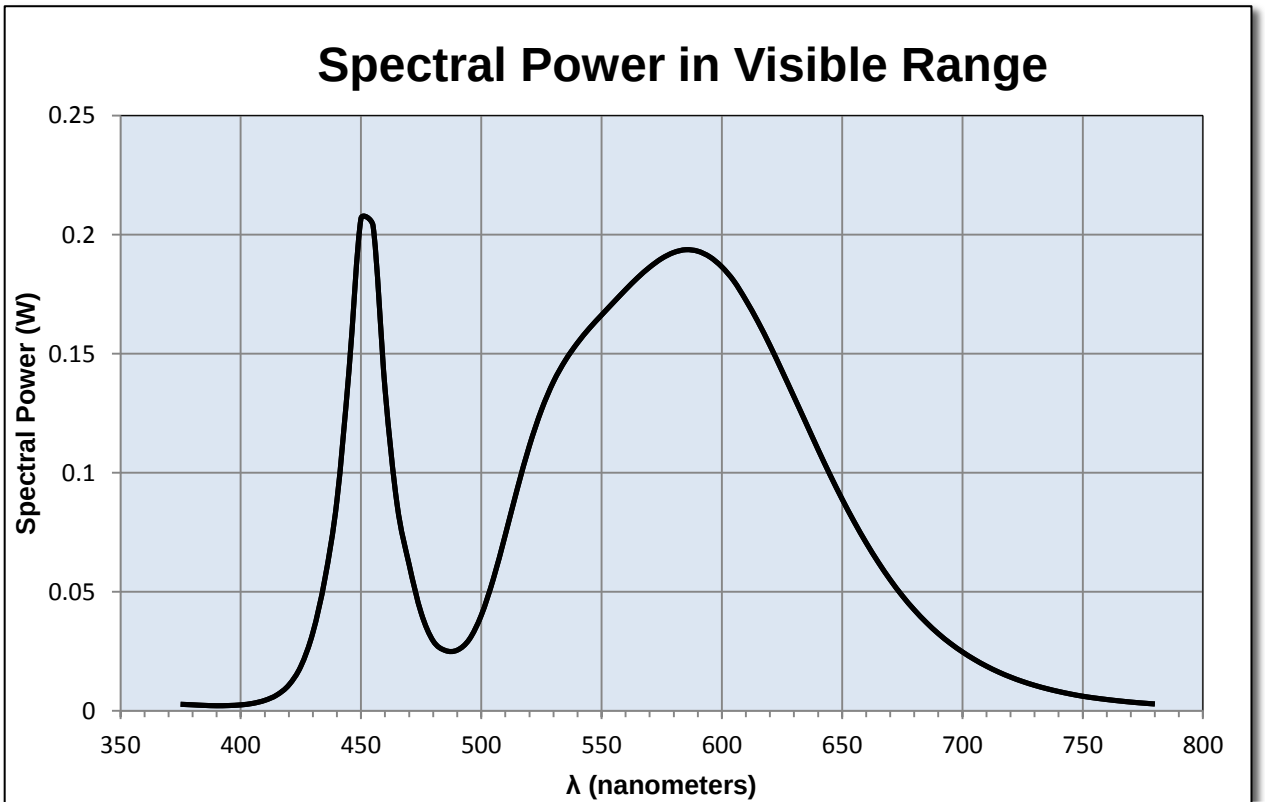
Ambient Temperature:	25 ± 1	(°C)

Electrical Measurements:

Input Voltage:	120	(VAC)
Input Current:	0.755	(A)
Input Power:	89.7	(W)
Input Power Factor:	0.99	
Current ATHD:	10.47	(%)

Photometric measurements:

Luminous Flux:	10900	(lumens)
Luminous Efficacy:	121.5	(lumens/W)
Correlated Color Temperature (CCT):	3855	(K)
CRI -Ra:	73.3	
CRI -R9:	-18.2	
DUV:	0.00058	
CIE Coordinate (x):	0.388	
CIE Coordinate (y):	0.382	
CIE Coordinate (u'):	0.228	
CIE Coordinate (v'):	0.337	



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	0.003	515	0.093	655	0.079
380	0.003	520	0.111	660	0.071
385	0.002	525	0.126	665	0.062
390	0.002	530	0.138	670	0.055
395	0.002	535	0.147	675	0.048
400	0.002	540	0.155	680	0.042
405	0.003	545	0.161	685	0.037
410	0.004	550	0.166	690	0.032
415	0.007	555	0.172	695	0.028
420	0.011	560	0.177	700	0.025
425	0.019	565	0.182	705	0.022
430	0.033	570	0.186	710	0.019
435	0.056	575	0.19	715	0.016
440	0.088	580	0.193	720	0.014
445	0.143	585	0.194	725	0.012
450	0.207	590	0.193	730	0.011
455	0.204	595	0.191	735	0.009
460	0.135	600	0.186	740	0.008
465	0.087	605	0.181	745	0.007
470	0.061	610	0.172	750	0.006
475	0.041	615	0.163	755	0.005
480	0.029	620	0.153	760	0.005
485	0.025	625	0.143	765	0.004
490	0.025	630	0.132	770	0.004
495	0.03	635	0.121	775	0.003
500	0.04	640	0.11	780	0.003
505	0.055	645	0.099		
510	0.074	650	0.089		

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Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15003.
Dialight unit model number HE1RN4DN-xxx

Electrical Measurements:

Input Voltage:	120	(VAC)
Input current:	0.755	(A)
Input Power:	89.8	(W)
Power Factor:	0.99	

Photometric measurements:

Absolute Luminous Flux:	10866	(lumens)
Luminous Efficacy:	121.0	(lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY

ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	4205	4205	4205	4205	4205	
5	4262	4263	4267	4270	4263	159
15	4053	4112	4117	4094	4138	888
25	3970	4039	4070	4081	4076	1610
35	4253	4281	4316	4438	4423	2394
45	4169	4185	4191	4233	4242	3170
55	1468	1486	1498	1518	1535	2236
65	87	88	90	87	92	376
75	15	15	16	15	16	30
85	0	0	0	0	0	4
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	

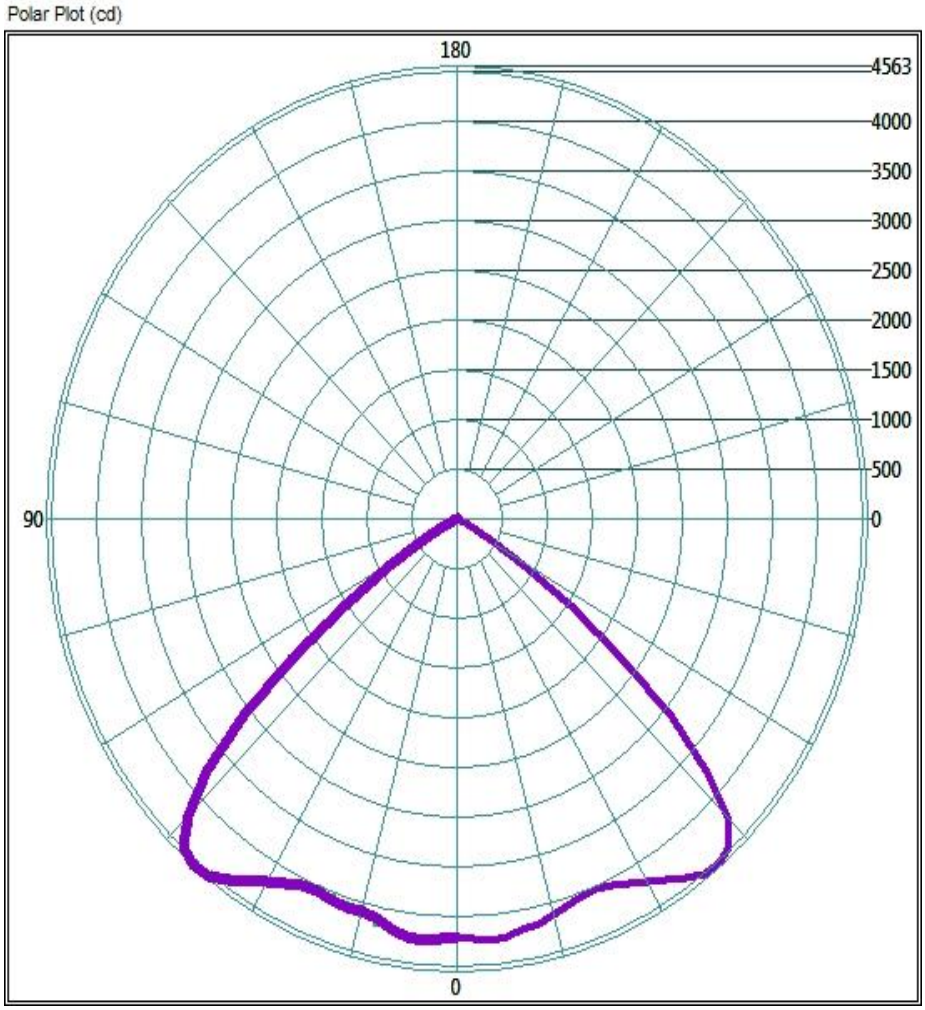
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	3742.98	34.4%
0-40	6583.18	60.6%
0-60	10761.88	99.0%
60-90	209.18	1.9%
0-90	10866.34	100.0%
90-180	0	0.0%
0-180	10866.34	100.0%

Test Results: Goniometer

Results continued from previous page.

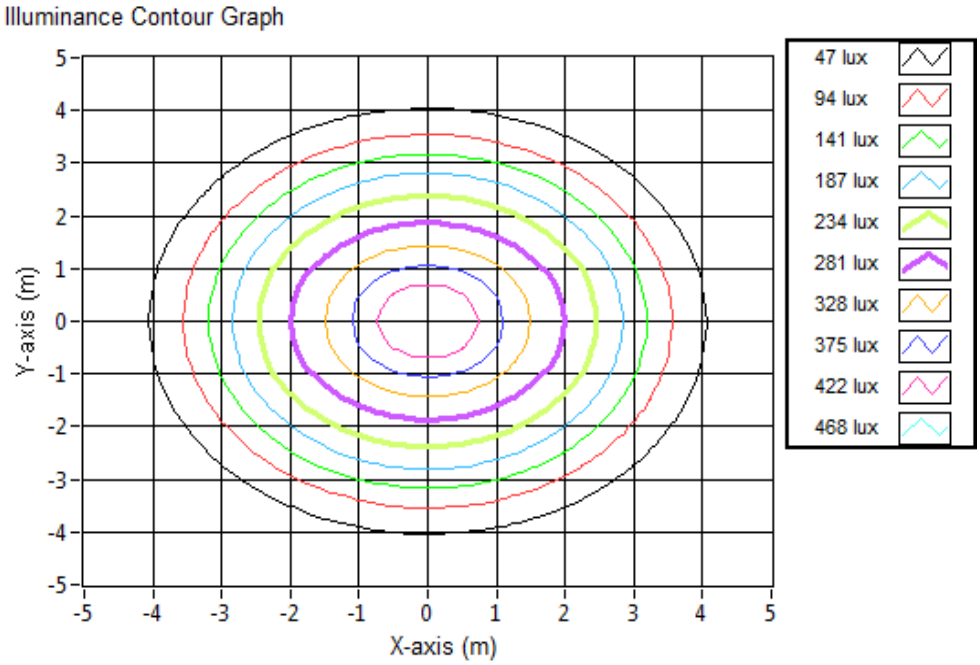
Polar Plot:



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	8.07	8.15	452.7
6.096	16.14	16.29	113.2
9.144	24.21	24.44	50.3
12.192	32.28	32.59	28.3
15.24	40.36	40.73	18.1
18.288	48.43	48.88	12.6
21.336	56.50	57.03	9.2
24.384	64.57	65.17	7.1
27.432	72.64	73.32	5.6
30.48	80.71	81.47	4.5

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15003.
Dialight unit model number HE1RN4DN-xxx

LED identified as Nichia part number NT2L757DT.

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:

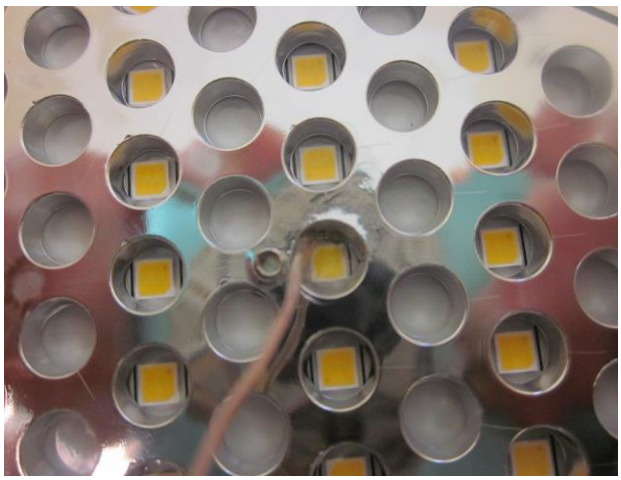
Maximum Power at Indicated Current:	0.35	(W)
Maximum Source Temperature:	113.7	(°C)

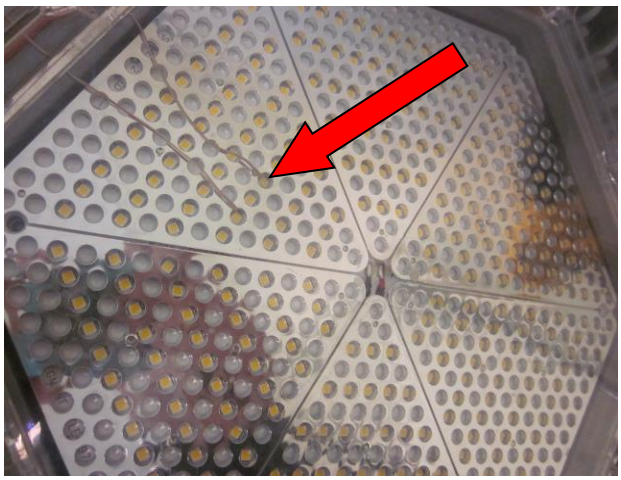
Test Conditions:

Temperature Measurement Location:	See Photographs Below	
Ambient Temperature:	25° ± 1‘	(°C)
Ambient temperature at time of measurement:	24.5	(°C)
Relative humidity at time of measurement:	10%	

Results:

Measured LED source temperature:	41.1	(°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 Precison	1715A	-
TDK-Lambda	GEN1500W	-
Fluke 8808A Digit Multimeter	8808A	4/14/2015
TPI Digitial Thermometer 343	343	4/17/2015
TPI Digitial 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.

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