

Test Report

Report Number: L20076

Date: Nov 18, 2020

Issued by:

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

Test of one Highbay

Unit manufacturer: Dialight Corporation

Unit model number: H[C,E,F,W][D,U]-[2,T]EN-[2,8]Ex-xxx-xx

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: November 13, 2020 through November 16, 2020

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: L20076

Manufacturer: Dialight Corporation

Product Name: Highbay

Description: Highbay

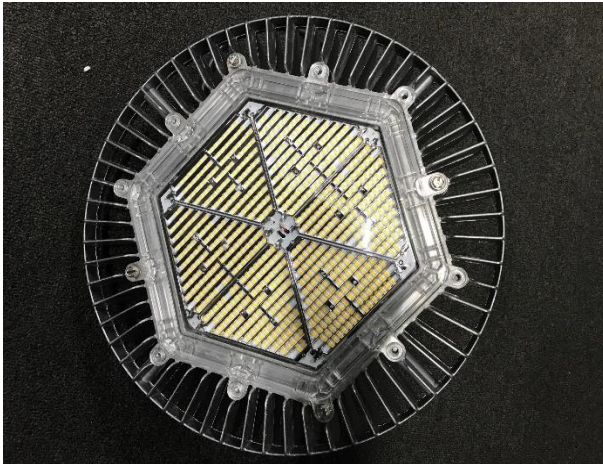
Model Number: H[C,E,F,W][D,U]-[2,T]EN-[2,8]Ex-xxx-xx

Report Summary

Sample number L20076

Dialight unit model number H[C,E,F,W][D,U]-[2,T]EN-[2,8]Ex-xxx-xx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	25098 (lumens)	24982 (lumens)
Electrical Power:	184.8 (W)	182.9 (W)
Luminous Efficacy:	135.8 (lumens/W)	136.6 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 184.8 (W)
 Power Factor (120VAC): 0.995686
 Current ATHD % (120VAC): 5.01107
 Input Power (277VAC): 178.4 (W)
 Power Factor (277VAC): 0.9565
 Current ATHD % (277VAC): 9.44

Color Measurements:

Correlated Color Temperature (CCT): 3991
 Color Rendering Index (CRI): 83.5431
 Chromaticity Coordinate (x): 0.382
 Chromaticity Coordinate (y): 0.382
 Chromaticity Coordinate (u'): 0.224
 Chromaticity Coordinate (v'): 0.336
 DUV: 0.0018

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L20076.
Dialight unit model number H[C,E,F,W][D,U]-[2,T]EN-[2,8]Ex-xxx-xx

Test Conditions:

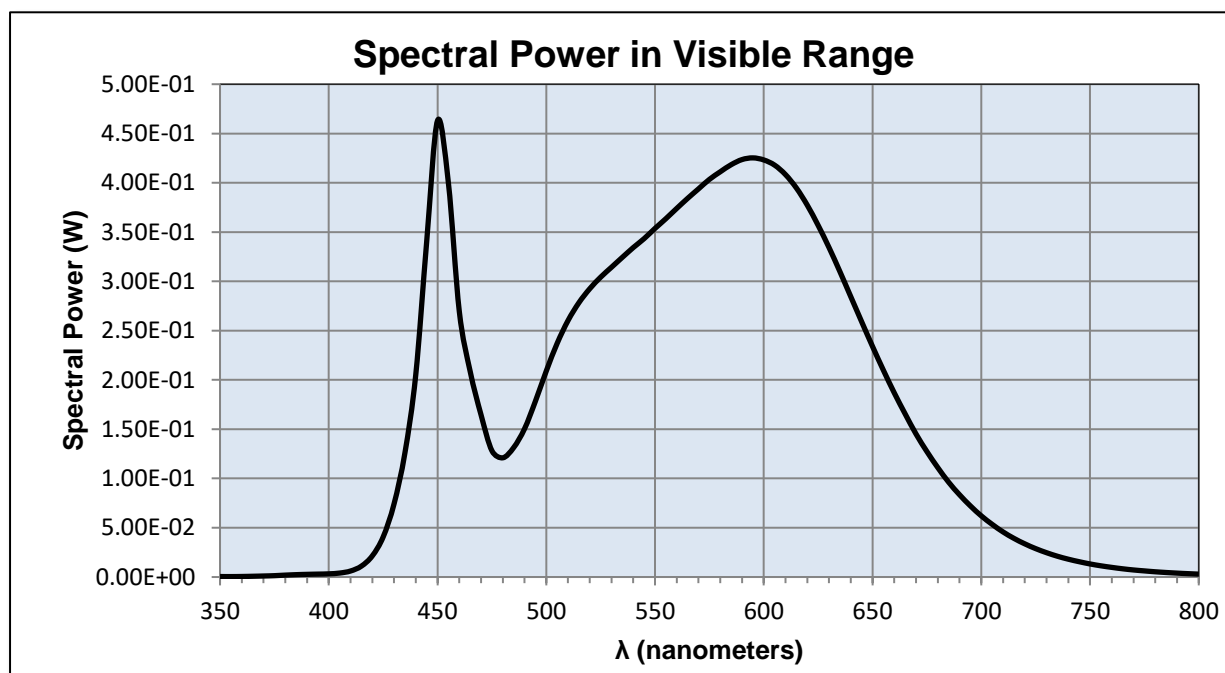
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 119.39 (VAC)
Input Current: 1.55445 (A)
Input Power: 184.8 (W)
Input Power Factor: 0.995686
Current ATHD: 5.01107 (%)

Photometric measurements:

Luminous Flux: 25097.88 (lumens)
Luminous Efficacy: 135.8 (lumens/W)
Correlated Color Temperature (CCT): 3991 (K)
CRI -Ra: 83.5431
CRI -R9: 13.6428
DUV: 0.0018
CIE Coordinate (x): 0.382
CIE Coordinate (y): 0.382
CIE Coordinate (u'): 0.224
CIE Coordinate (v'): 0.336
TM30_Rf: 83.1
TM30_Rg: 95.9
TM30_Rcs_hue1: -11.04 %



Test Results: Integrating Sphere

Results continued from previous page.

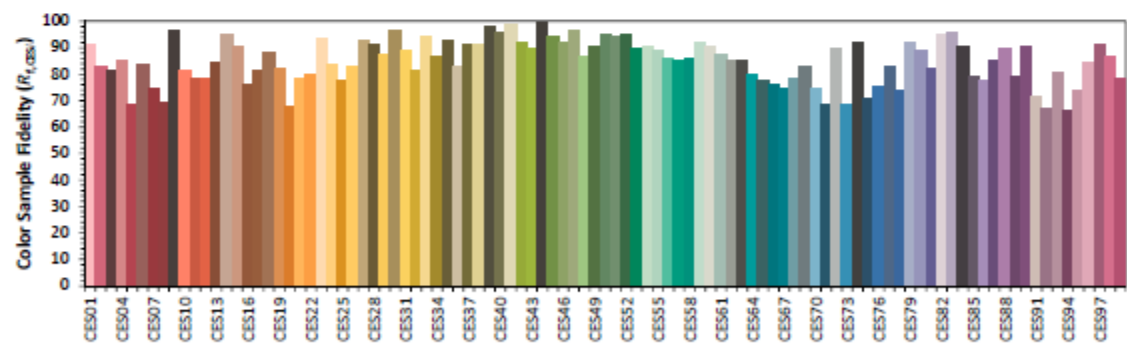
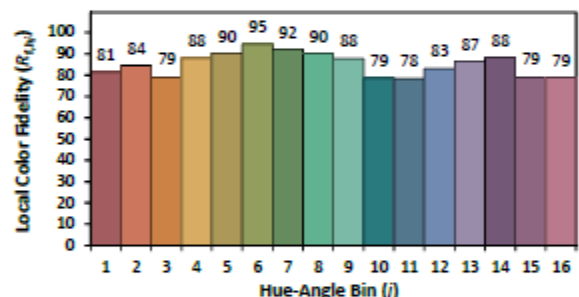
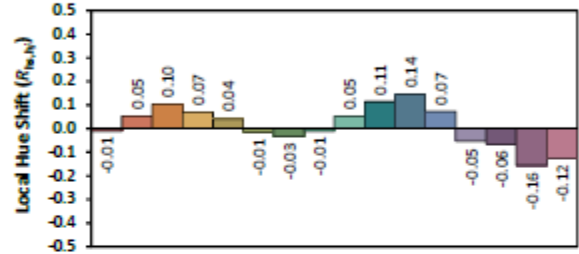
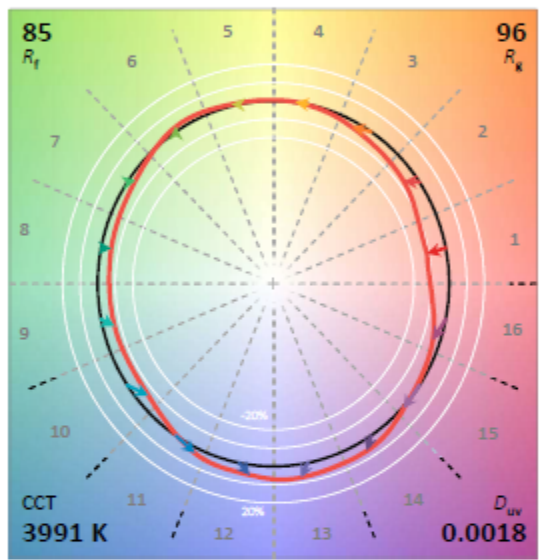
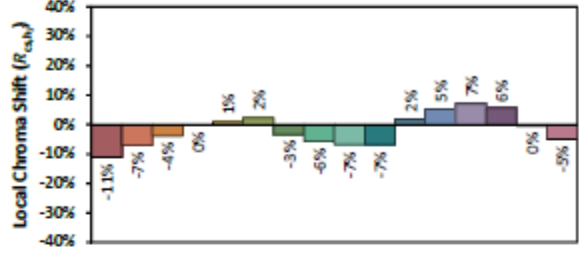
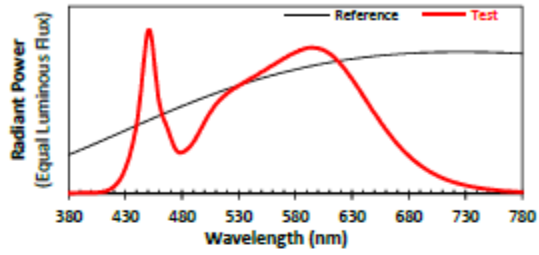
Tabulated Spectral Power in Visible Range:

λ (nm)	(W/nm)	λ (nm)	(W/nm)	λ (nm)	(W/nm)	λ (nm)	(W/nm)
350	0.00050	490	0.15036	630	0.33429	770	0.00717
355	0.00044	495	0.17833	635	0.30989	775	0.00620
360	0.00057	500	0.20900	640	0.28442	780	0.00532
365	0.00077	505	0.23708	645	0.25904	785	0.00460
370	0.00104	510	0.26023	650	0.23396	790	0.00396
375	0.00138	515	0.27828	655	0.20980	795	0.00343
380	0.00194	520	0.29252	660	0.18682	800	0.00295
385	0.00240	525	0.30422	665	0.16549		
390	0.00274	530	0.31433	670	0.14515		
395	0.00297	535	0.32440	675	0.12730		
400	0.00323	540	0.33425	680	0.11106		
405	0.00403	545	0.34335	685	0.09620		
410	0.00610	550	0.35370	690	0.08349		
415	0.01106	555	0.36360	695	0.07215		
420	0.02142	560	0.37404	700	0.06209		
425	0.04065	565	0.38419	705	0.05344		
430	0.07419	570	0.39382	710	0.04577		
435	0.12588	575	0.40340	715	0.03925		
440	0.20529	580	0.41115	720	0.03368		
445	0.33980	585	0.41835	725	0.02883		
450	0.46308	590	0.42355	730	0.02470		
455	0.39967	595	0.42525	735	0.02110		
460	0.26957	600	0.42316	740	0.01810		
465	0.20875	605	0.41787	745	0.01554		
470	0.16459	610	0.40826	750	0.01328		
475	0.12816	615	0.39466	755	0.01137		
480	0.12095	620	0.37729	760	0.00979		
485	0.13133	625	0.35680	765	0.00836		

ANSI/IES TM-30-18 Color Rendition Report

Source: L20076
Date: 11/16/2020

Manufacturer: Dialight Corporation
Model: HEU-2EN-2ED-NWN-GN



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3821	CIE 13.3-1995 (CRI)
y	0.3817	
u'	0.2242	
v'	0.5040	
		R_g 14

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20076.
Dialight unit model number H[C,E,F,W][D,U]-[2,T]EN-[2,8]Ex-xxx-xx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.5319 (A)
Input Power: 182.9 (W)
Power Factor: 0.9944

Photometric measurements:

Absolute Luminous Flux: 24982.1 (lumens)
Luminous Efficacy: 136.6 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	17822	17820	17792	17769	17822	
5.00	16427	16986	17752	17178	16690	1714
15.00	11578	13532	17242	13888	11950	3667
25.00	8672	9865	16030	10087	8847	4616
35.00	7179	7766	14196	7831	7433	5208
45.00	2879	6106	11666	6223	3206	3796
55.00	252	2307	8225	2392	278	1598
65.00	85	251	4573	252	88	683
75.00	58	78	1360	75	60	239
85.00	13	26	100	26	17	17
90.00	2	6	19	6	3	

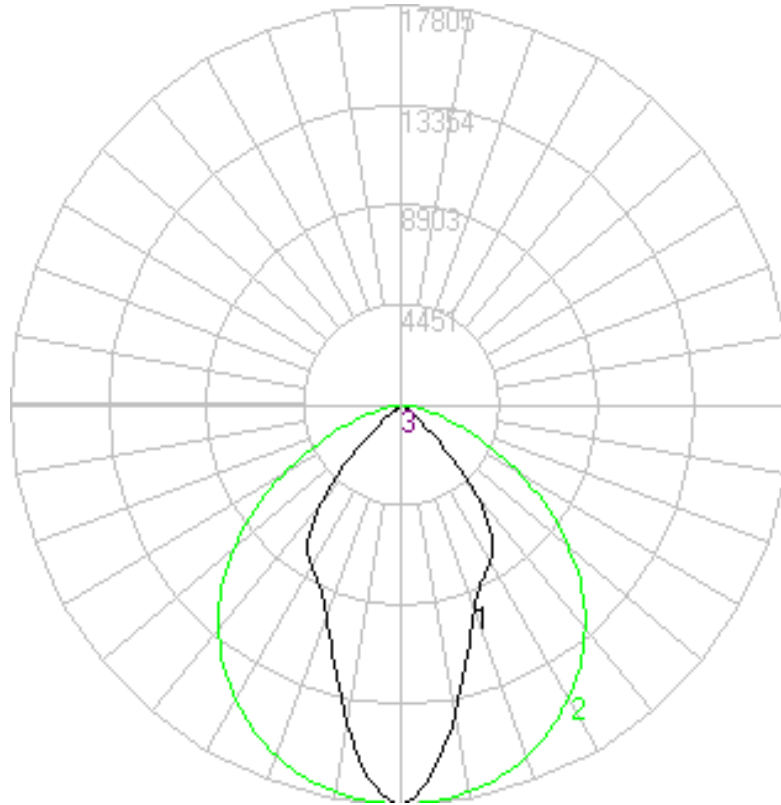
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	10620.69	42.41	42.41
0 to 40	16210.88	64.73	64.73
0 to 60	23524.32	93.94	93.94
0 to 90	24982.64	99.76	99.76
90 to 180	60.52	0.24	0.24
0 to 180	25043.17	100.00	100.00

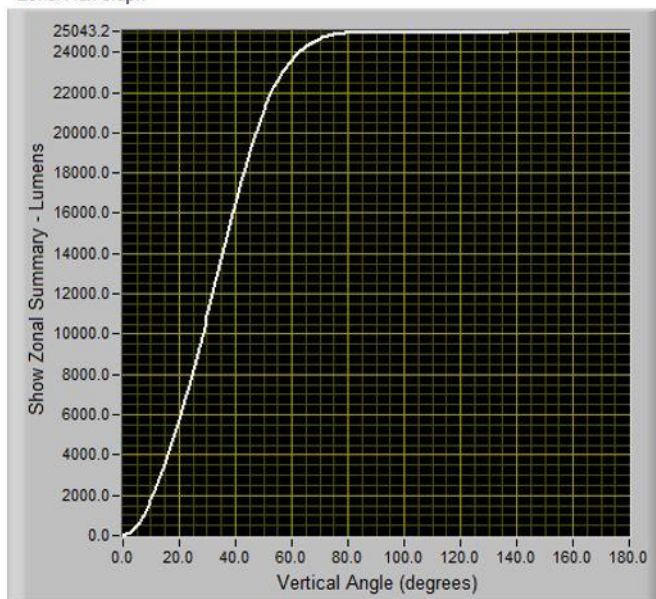
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



Zonal Flux Graph



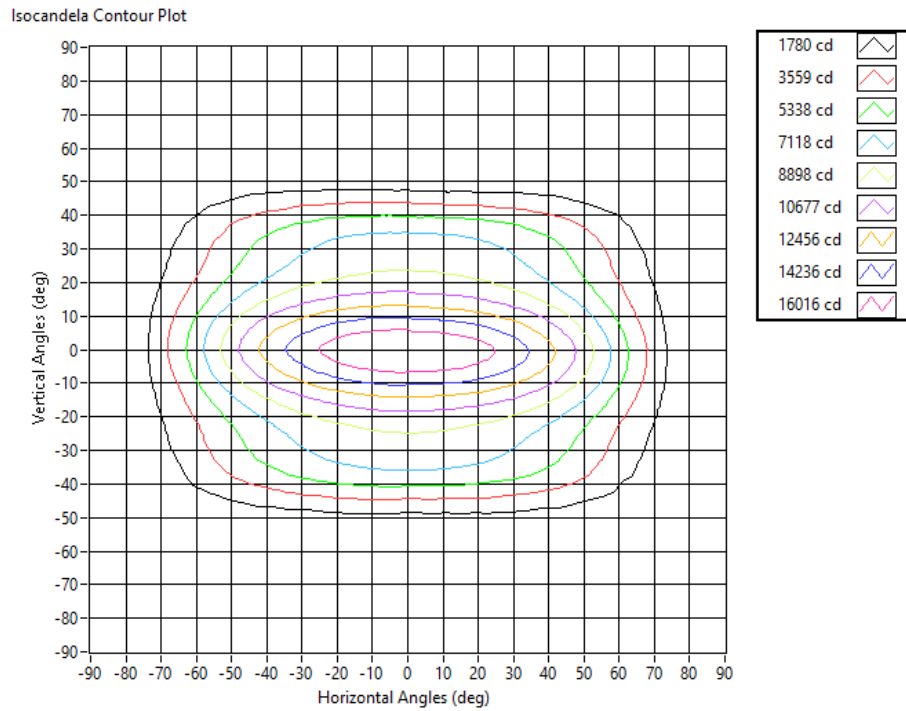
Zonal Lumen Summary

0 to 10	1587.7
0 to 20	5511.8
0 to 30	10620.7
0 to 40	16210.9
0 to 50	20883.3
0 to 60	23524.3
0 to 70	24651.3
0 to 80	24939.2
0 to 90	24982.6
0 to 100	24986.0
0 to 110	24987.6
0 to 120	24992.6
0 to 130	24999.8
0 to 140	25009.4
0 to 150	25020.5
0 to 160	25031.5
0 to 170	25039.9
0 to 180	25043.2

Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (ft)	Beam Cone Width (ft)	Orthogonal Beam Cone Width (ft)	Projected Illuminance (fc)
2	1.78	5.30	4448.0
4	3.56	10.59	1112.0
6	5.34	15.89	494.2
8	7.11	21.19	278.0
10	8.89	26.48	177.9
12	10.67	31.78	123.6
14	12.45	37.07	90.8
16	14.23	42.37	69.5
18	16.01	47.67	54.9
20	17.78	52.96	44.5

Equipment Used:

Equipment Name	Model Number
Omega TC	DPI8
YOKOGAWA Digital Power Meter	11/26/3981
LSI High Speed Mirror Goniometer	6240T
Elgar AC Power Supply	CW1251P
Sorensen DC Power Supply	XHR150-7
Dialight Confirmation Sample	HB1N4N
Dialight Confirmation Sample	HB1N4J
Fluke 8808A Digit Multimeter	8808A
Step-Up Transformer	
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
Fluke 971 Humidity Meter	8/28/1902
GwINSTEK DC Power Supply	GEP172679
Dialight Confirmation Sample	1/0/1900
Labsphere calibration lamp for 2M sphere	SCL-1400
Labshere 2M sphere	Illumia Plus 2600-1
Labshere Controller	PM-150-140
Labshere Spectrometer- CDS 2600 Spectrometer	CDS-2600
Xitron Power Analyzer	9/1/1907
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo

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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 Dialight Optics Laboratory
 Senior Optical Engineering Technician
 Lighting Division

Test Report Reviewed and Approved By:

Vishnu Shastry
 Dialight Optics Laboratory
 Optical Engineer
 Approved Signatory