

Test Report

Report Number: L20080

Date: Nov 30, 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]-[4,V]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: 11/16/2020 - 11/16/2020

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: L20080

Manufacturer: Dialight Corporation

Product Name: Highbay

Description: Highbay

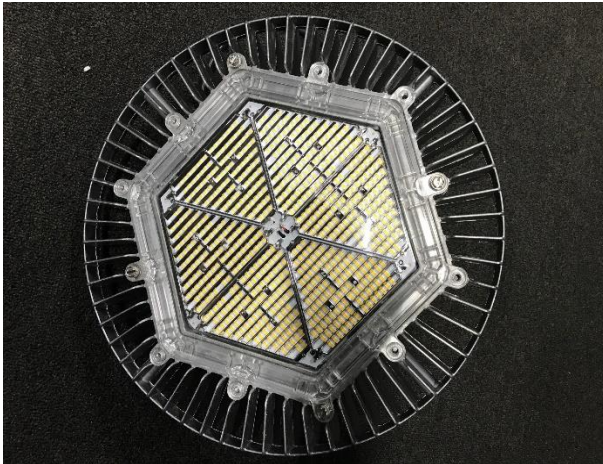
Model Number: H[C,E,F,W][D,U]-[4,V]EN-[2,8]Ex-xxx-xx

Report Summary

Sample number L20080

Dialight unit model number H[C,E,F,W][D,U]-[4,V]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:	24855 (lumens)	24859 (lumens)
Electrical Power:	182.8 (W)	182.9 (W)
Luminous Efficacy:	136 (lumens/W)	136 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 182.8 (W)
 Power Factor (120VAC): 0.955999
 Current ATHD % (120VAC): 5.41
 Input Power (277VAC): 178.5 (W)
 Power Factor (277VAC): 0.9564
 Current ATHD % (277VAC): 9.4

Color Measurements:

Correlated Color Temperature (CCT): 3965
 Color Rendering Index (CRI): 83.4165
 Chromaticity Coordinate (x): 0.383
 Chromaticity Coordinate (y): 0.383
 Chromaticity Coordinate (u'): 0.225
 Chromaticity Coordinate (v'): 0.337
 DUV: 0.0021

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L20080.

Dialight unit model number H[C,E,F,W][D,U]-[4,V]EN-[2,8]Ex-xxx-xx

Test Conditions:

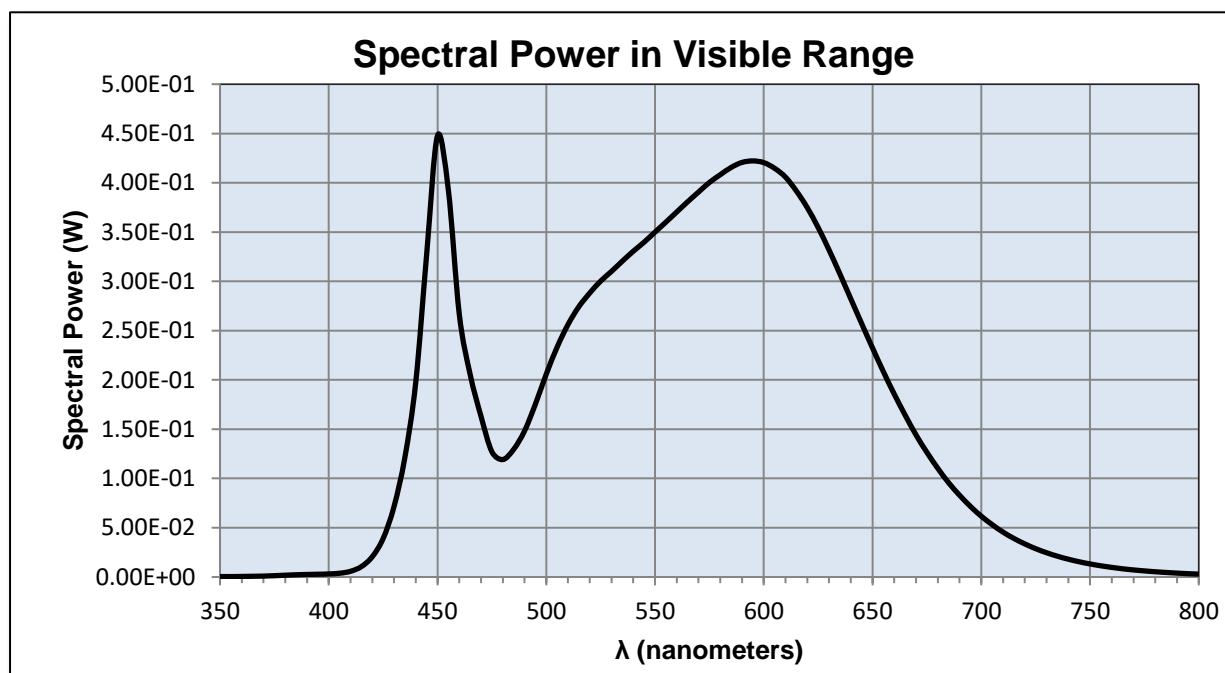
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.532 (A)
Input Power: 182.8 (W)
Input Power Factor: 0.955999
Current ATHD: 5.41 (%)

Photometric measurements:

Luminous Flux: 24855.24 (lumens)
Luminous Efficacy: 136.0 (lumens/W)
Correlated Color Temperature (CCT): 3965 (K)
CRI -Ra: 83.4165
CRI -R9: 12.9509
DUV: 0.0021
CIE Coordinate (x): 0.383
CIE Coordinate (y): 0.383
CIE Coordinate (u'): 0.225
CIE Coordinate (v'): 0.337
TM30_Rf: 83.0
TM30_Rg: 95.8
TM30_Rcs_hue1: -11.13 %



Test Results: Integrating Sphere

Results continued from previous page.

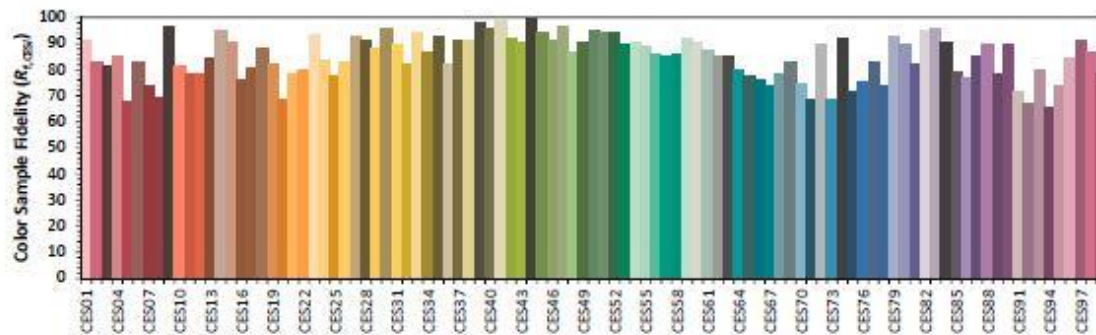
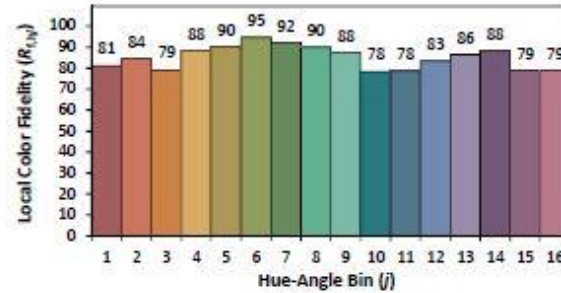
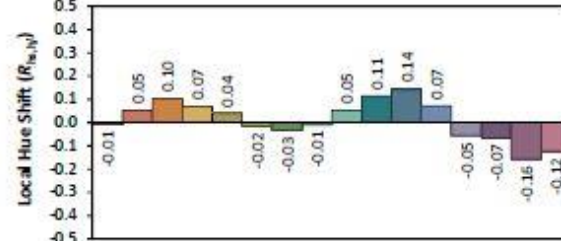
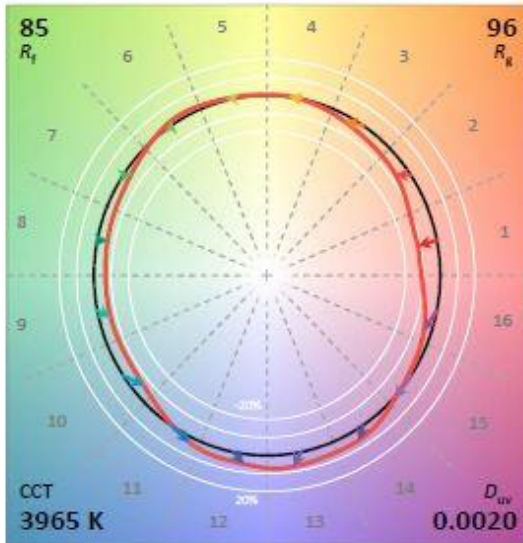
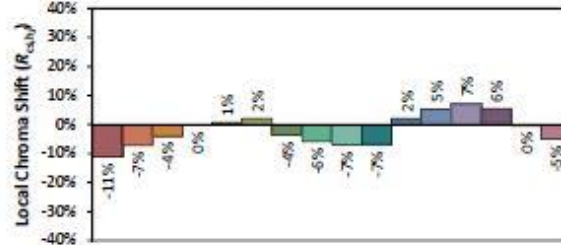
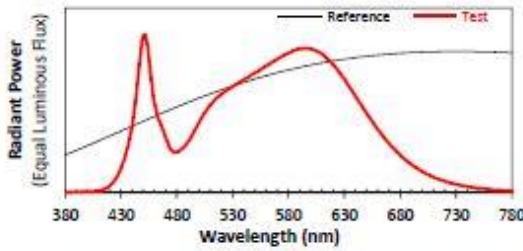
Tabulated Spectral Power in Visible Range:

$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)
350	0.00046	490	0.14814	630	0.33188	770	0.00719
355	0.00047	495	0.17539	635	0.30749	775	0.00621
360	0.00060	500	0.20587	640	0.28226	780	0.00534
365	0.00077	505	0.23332	645	0.25720	785	0.00463
370	0.00097	510	0.25623	650	0.23240	790	0.00397
375	0.00137	515	0.27434	655	0.20835	795	0.00341
380	0.00185	520	0.28815	660	0.18552	800	0.00297
385	0.00229	525	0.30026	665	0.16424		
390	0.00261	530	0.31010	670	0.14419		
395	0.00283	535	0.32054	675	0.12649		
400	0.00315	540	0.33053	680	0.11032		
405	0.00384	545	0.33975	685	0.09564		
410	0.00581	550	0.34998	690	0.08303		
415	0.01057	555	0.36006	695	0.07170		
420	0.02062	560	0.37040	700	0.06173		
425	0.03915	565	0.38074	705	0.05317		
430	0.07157	570	0.39055	710	0.04558		
435	0.12156	575	0.40029	715	0.03913		
440	0.19774	580	0.40817	720	0.03362		
445	0.32723	585	0.41555	725	0.02879		
450	0.44792	590	0.42065	730	0.02465		
455	0.39214	595	0.42215	735	0.02111		
460	0.26658	600	0.42046	740	0.01808		
465	0.20561	605	0.41463	745	0.01548		
470	0.16299	610	0.40569	750	0.01328		
475	0.12704	615	0.39162	755	0.01139		
480	0.11917	620	0.37477	760	0.00976		
485	0.12954	625	0.35460	765	0.00835		

ANSI/IES TM-30-18 Color Rendition Report

Source: LED
Date: 11/16/2020

Manufacturer: Dialight Corporation
Model: HEU4EN2EDNWNNGN



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

x 0.3835
 y 0.3830
 u' 0.2246
 v' 0.5048

CIE 13.3-1995
(CRI)
 R_a 83
 R_g 13

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20080.
Dialight unit model number H[C,E,F,W][D,U]-[4,V]EN-[2,8]Ex-xxx-xx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.532 (A)
Input Power: 182.9 (W)
Power Factor: 0.9944

Photometric measurements:

Absolute Luminous Flux: 24859 (lumens)
Luminous Efficacy: 136.0 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	17594	17586	17567	17539	17594	
5.00	16295	16818	17539	16999	16422	1694
15.00	11525	13460	17058	13794	11805	3637
25.00	8643	9843	15856	10017	8784	4587
35.00	7191	7750	14041	7806	7396	5188
45.00	2848	6172	11568	6241	3072	3754
55.00	254	2371	8318	2369	290	1617
65.00	88	257	4960	249	93	734
75.00	65	75	1530	79	71	268
85.00	12	16	49	20	18	11
90.00	1	1	2	2	2	

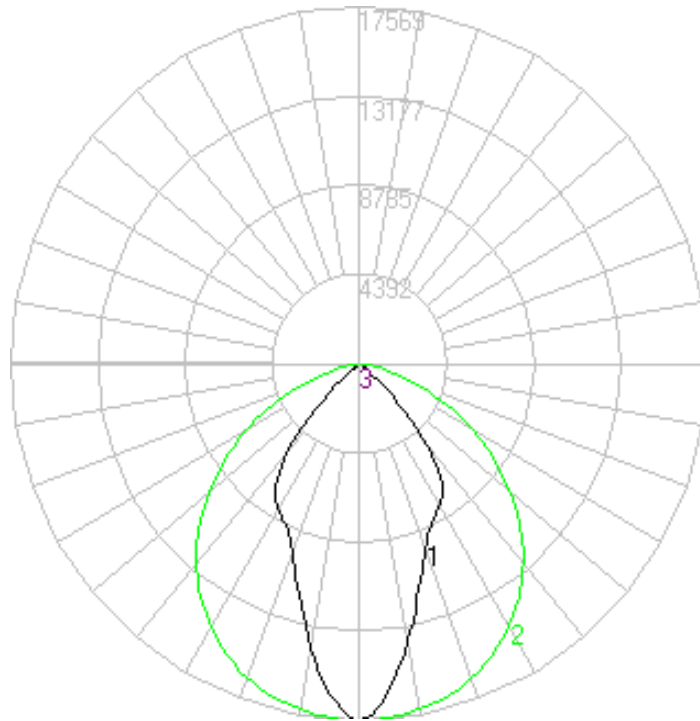
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	10519.99	42.32	42.32
0 to 40	16071.09	64.65	64.65
0 to 60	23365.61	93.99	93.99
0 to 90	24859.58	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	24859.58	100.00	100.00

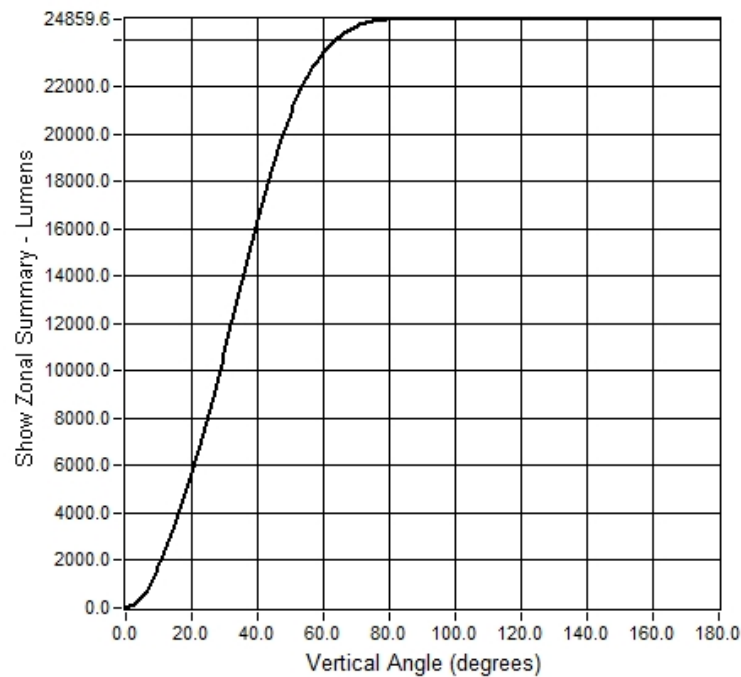
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



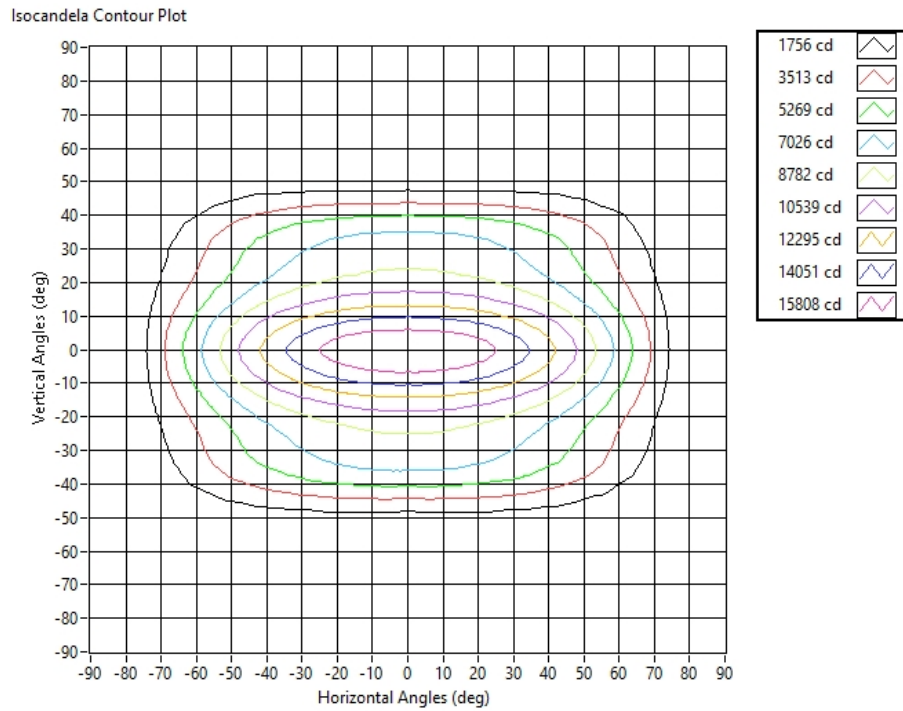
Zonal Flux Graph



Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone	Projected Illuminance (lux)
6.56168	6.25	407.83	20.0
13.1234	12.50	101.96	20.0
19.685	18.76	45.31	20.0
26.2467	25.01	25.49	20.0
32.8084	31.26	16.31	20.0
39.3701	37.51	11.33	20.0
45.9318	43.77	8.32	20.0
52.4934	50.02	6.37	20.0
59.0551	56.27	5.03	20.0
65.6168	62.52	4.08	20.0

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
 Optical Engineer
 Approved Signatory