

Test Report

Report Number: L19019

Date: Apr 9, 2019

Issued by:

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

Test of one High Bay

Unit manufacturer: Dialight Corporation
Unit model number: RRE-7MC2-Gxxx-xxN

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: April 2, 2019 through April 9, 2019

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: L19019
Manufacturer: Dialight Corporation
Product Name: Reliant High Bay
Description: High Bay
Model Number: RRE-7MC2-Gxxx-xxN

Report Summary

Sample number L19019
Dialight unit model number RRE-7MC2-Gxxx-xxN

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	30080 (lumens)	30094 (lumens)
Electrical Power:	191.6 (W)	192.7 (W)
Luminous Efficacy:	157 (lumens/W)	156.2 (lumens/W)

Electrical Measurements:

Input Power (230VAC): 191.6 (W)
Power Factor (230VAC): 0.985
Current ATHD % (230VAC): 9.033
Input Power (110VAC): 198.3 (W)
Power Factor (110VAC): 0.996
Current ATHD % (110VAC): 4.153

Color Measurements:

Correlated Color Temperature (CCT): 5000
Color Rendering Index (CRI): 86.3
Chromaticity Coordinate (x): 0.346
Chromaticity Coordinate (y): 0.356
Chromaticity Coordinate (u'): 0.21
Chromaticity Coordinate (v'): 0.325
DUV: 0.0019

Temperature Measurements:

In Situ LED Source Temperature: 56.6 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L19019.

Dialight unit model number RRE-7MC2-Gxxx-xxN

Test Conditions:

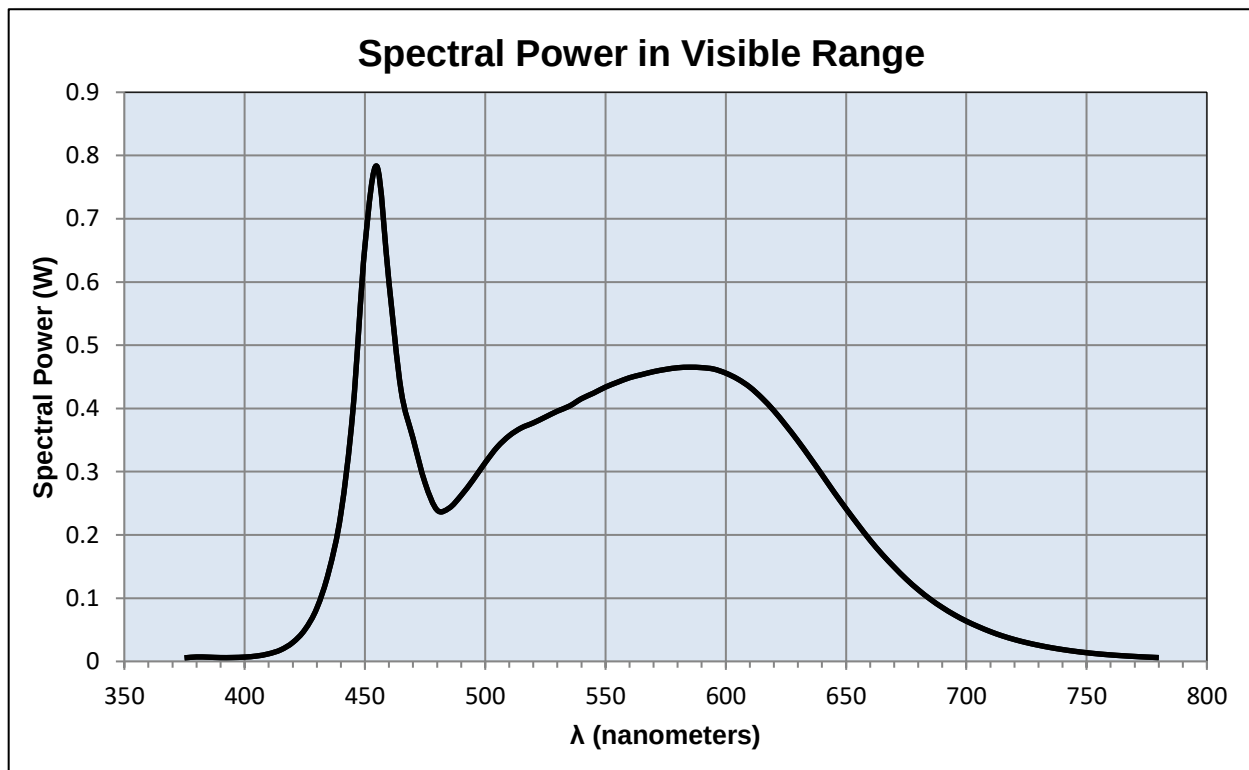
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 230 (VAC)
Input Current: 0.848 (A)
Input Power: 191.6 (W)
Input Power Factor: 0.985
Current ATHD: 9.033 (%)

Photometric measurements:

Luminous Flux: 30080 (lumens)
Luminous Efficacy: 157.0 (lumens/W)
Correlated Color Temperature (CCT): 5000 (K)
CRI -Ra: 86.3
CRI -R9: 22.5
DUV: 0.0019
CIE Coordinate (x): 0.346
CIE Coordinate (y): 0.356
CIE Coordinate (u'): 0.21
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	0.006	515	0.369	655	0.216
380	0.007	520	0.377	660	0.192
385	0.007	525	0.386	665	0.169
390	0.006	530	0.396	670	0.149
395	0.006	535	0.404	675	0.130
400	0.007	540	0.415	680	0.113
405	0.009	545	0.424	685	0.098
410	0.012	550	0.434	690	0.085
415	0.018	555	0.441	695	0.074
420	0.030	560	0.449	700	0.064
425	0.050	565	0.454	705	0.055
430	0.084	570	0.458	710	0.047
435	0.142	575	0.462	715	0.040
440	0.233	580	0.464	720	0.035
445	0.396	585	0.465	725	0.030
450	0.657	590	0.465	730	0.026
455	0.783	595	0.462	735	0.022
460	0.599	600	0.456	740	0.019
465	0.429	605	0.447	745	0.016
470	0.353	610	0.434	750	0.014
475	0.282	615	0.417	755	0.012
480	0.239	620	0.396	760	0.010
485	0.242	625	0.373	765	0.009
490	0.262	630	0.349	770	0.008
495	0.287	635	0.322	775	0.007
500	0.314	640	0.295	780	0.006
505	0.339	645	0.268		
510	0.357	650	0.242		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L19019.
Dialight unit model number RRE-7MC2-Gxxx-xxN

Electrical Measurements:

Input Voltage: 230 (VAC)
Input current: 0.848 (A)
Input Power: 192.7 (W)
Power Factor: 0.985

Photometric measurements:

Absolute Luminous Flux: 30094 (lumens)
Luminous Efficacy: 156.2 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	10513	10513	10513	10513	10513	
5	10519	10519	10519	10519	10519	393
15	10974	10974	10974	10974	10974	2350
25	11852	11852	11852	11852	11852	4546
35	12258	12258	12258	12258	12258	6990
45	9676	9676	9676	9676	9676	7829
55	5074	5074	5074	5074	5074	5860
65	700	700	700	700	700	1941
75	37	37	37	37	37	168
85	6	6	6	6	6	16
95	0	0	0	0	0	1
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

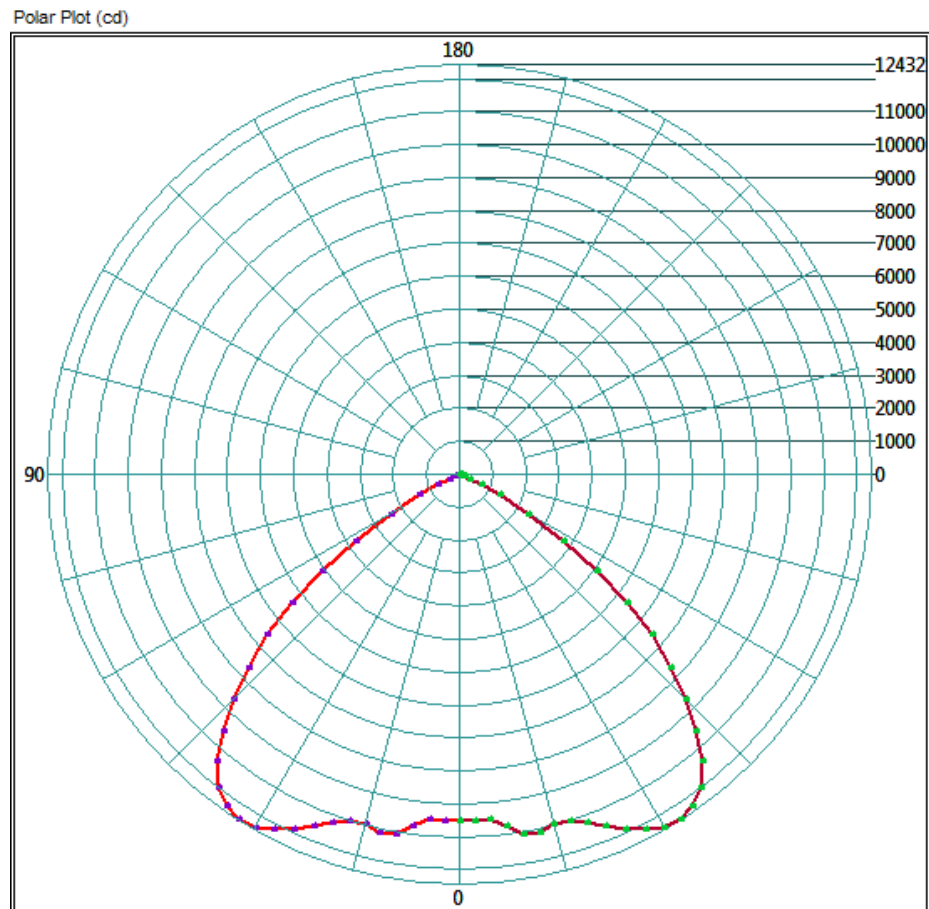
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	10520.32	35.0%
0-40	18276	60.7%
0-60	29405.12	97.7%
60-90	1262.72	4.2%
0-90	30093.6	100.0%
90-180	0	0.0%
0-180	30093.6	100.0%

Test Results: Goniometer

Results continued from previous page.

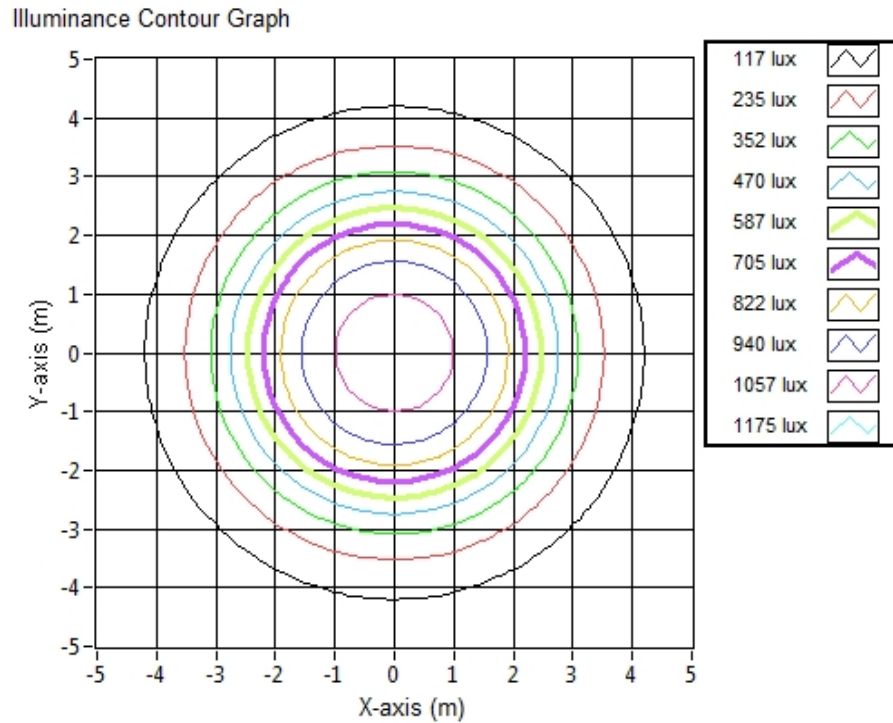
Polar Plot:



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	8.59	8.59	1131.6
6.096	17.18	17.18	282.9
9.144	25.77	25.77	125.7
12.192	34.37	34.37	70.7
15.24	42.96	42.96	45.3
18.288	51.55	51.55	31.4
21.336	60.14	60.14	23.1
24.384	68.73	68.73	17.7
27.432	77.32	77.32	14.0
30.48	85.92	85.92	11.3

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L19019.

Dialight unit model number RRE-7MC2-Gxxx-xxN

LED identified as Seoul Semiconductor part number SAW8C22B.

LED drive current (as indicated by customer): 29 (mA)

LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If):	250	(mA)
Maximum Rated Power Dissipation:	1.5	(W)
Maximum Junction Temp. (Tj):	125	(°C)
Thermal Resistance (Rth):	17	(°C/W)

Derived Specifications:

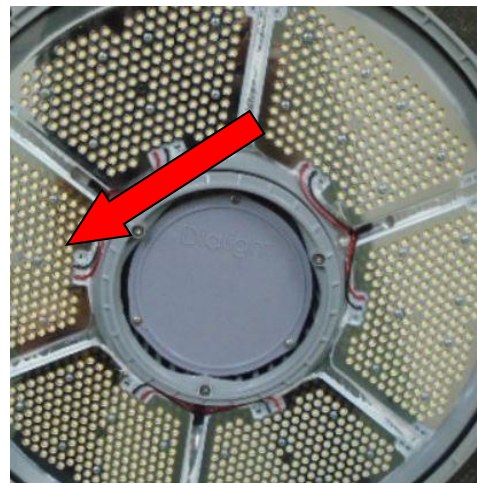
Maximum Power at Indicated Current:	0.174	(W)
Maximum Source Temperature:	122	(°C)

Test Conditions:

Temperature Measurement Location:	See Photographs Below
Ambient Temperature:	25° ± 5' (°C)
Ambient temperature at time of measurement:	24.5 (°C)
Relative humidity at time of measurement:	30%

Results:

Measured LED source temperature: 56.6 (°C)



Equipment Used:

Equipment Name	Model Number
Omega TC	Dpi8
Fluke 8808A Digit Multimeter	8808A
YOKOGAWA Digital Power Meter	11/26/3981
LSI High Speed Mirror Goniometer	6240T
Instrument System Spectrometer	CAS140B-151
Instrument System 1.5 Meter Sphere	ISP1500
Delta Elektronika DC Power Supply	SM.300-5
Instek AC Power Supply	APS-9501
Sorensen DC Power Supply	XHR150-7
TPI Digital Thermometer	TPI 343
Fluke 52II Thermometer	068158
Fluke 971 Humidity Meter	971
Volttech Power Analyzer	PM1000+
Volttech Universal Breakout Box	PM1000+
BK Precision	1715A
Step-Up Transformer	
Omega TC	Dpi8-C24
Agilent True RMS OLED Multimeter	U1273A
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
Adaptive Power Systems AC Power Supply	FC-210
Xitron Power Analyzer	XT2640
GwINSTEK DC Power Supply	GEP172679
Osram Sylvania Calibration Lamp for Sphere	STD-20WF-3

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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