

**REPORT NUMBER:**RAB04554

**PAGE:** 1 OF 6

**ISSUE DATE:**09/04/18

**DATE SAMPLE TESTED:** 09/04/18

**PREPARED FOR:** RAB LIGHTING INC. RC LIGHTING

**CATALOG NUMBER:** CDL2[WD, S, PC, PS]-10WWWD927-ODLENS

**LUMINAIRE:** EXTRUDED BLACK PAINTED ALUMINUM HOUSING, 1 WHITE CIRCUIT BOARD WITH ONE LED, POLYCARBONATE TIR LENS ON TOP OF THE LED, ALUMINUM TRIM DOOR WITH GLASS LENS.

**LAMPS:** ONE WHITE LIGHT EMITTING DIODES (LEDS).

NOTE: THIS REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT.

**ABSOLUTE:** NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

**WATT:** TOTAL INPUT WATTS = 11.7 W AT 277.0 VAC.

**LED DRIVER:** LED DRIVER: RDP-010-3EV40-A026

**PROCEDURE:** TEST PROCEDURE: IESNA LM-79-08

**NOTE:** LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE AMBIENT: 24.2

**NVLAP LAB CODE:** ACCREDITED LABORATORY CODE 201058-0



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Checked X.CAO

Approved D.WANG-MUNSON

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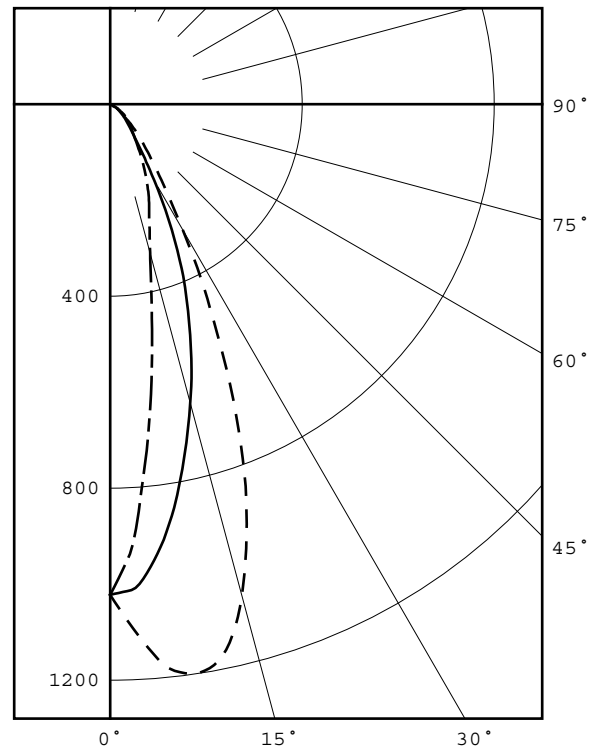
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: CDL2 [WD, S, PC, PS] -10WWWD927-ODLENS

CANDELA DISTRIBUTION						FLUX
	0.0	45.0	90.0	135.0	180.0	
0	1022	1022	1022	1022	1022	
5	1162	1106	967	834	784	88
15	1060	960	645	370	321	185
25	529	531	325	190	182	160
35	172	168	101	94	93	81
45	65	57	47	53	60	43
55	16	15	21	28	29	20
65	3	3	6	8	8	6
75	1	0	1	1	0	1
85	0	0	0	0	0	0
90	0	0	0	0	0	0
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

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	433	74.2
0- 40	514	88.1
0- 60	577	98.9
0- 90	583	100.0
90-120	0	0.0
90-130	0	0.0
90-150	0	0.0
90-180	0	0.0
0-180	583	100.0

EFFICACY = 49.8 lm/W  
 CIE TYPE - DIRECT  
 PLANE : 0-DEG 90-DEG 180-DEG  
 SPACING CRITERIA : 0.84 0.61 0.33



LEGEND  
 0-deg - - - - -  
 90-deg = = = = =  
 180-deg - . - . - .



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**CATALOG NUMBER:** CDL2 [WD, S, PC, PS] -10WWWD927-ODLENS

5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	24
5- 10	64
10- 15	88
15- 20	96
20- 25	90
25- 30	70
30- 35	48
35- 40	33
40- 45	24
45- 50	18
50- 55	12
55- 60	8
60- 65	4
65- 70	1
70- 75	0
75- 80	0
80- 85	0
85- 90	0
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	88
0- 20	273
0- 30	433
0- 40	514
0- 50	556
0- 60	577
0- 70	583
0- 80	583
0- 90	583
0-100	583
0-110	583
0-120	583
0-130	583
0-140	583
0-150	583
0-160	583
0-170	583
0-180	583

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0	
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	102	102	102	100
1	114	111	108	106	111	109	107	105	105	103	101	101	101	100	98	98	96	95	94
2	108	103	99	96	106	102	98	95	98	95	93	95	93	91	93	91	89	87	87
3	103	97	92	88	101	95	91	87	93	89	86	90	87	84	88	85	83	81	81
4	98	90	85	81	96	89	84	80	87	83	79	85	82	79	83	80	78	76	76
5	93	85	79	75	92	84	79	75	82	78	74	81	77	73	79	76	73	71	71
6	89	80	74	70	87	79	74	70	78	73	69	76	72	69	75	71	69	67	67
7	85	76	70	66	83	75	70	66	74	69	65	73	68	65	72	68	65	63	63
8	81	72	66	62	80	71	66	62	70	65	62	69	65	61	68	64	61	60	60
9	77	68	63	59	76	68	62	59	67	62	58	66	61	58	65	61	58	57	57
10	74	65	59	56	73	64	59	56	64	59	55	63	58	55	62	58	55	54	54

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS TEST SAMPLE.

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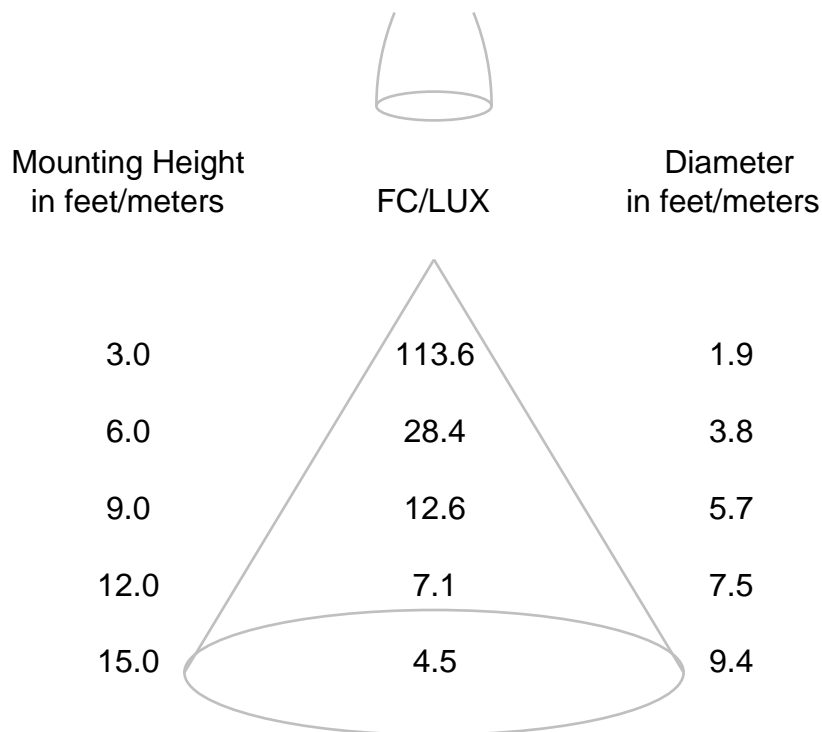
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**PREPARED FOR:** RAB LIGHTING INC. RC LIGHTING

**CATALOG NUMBER:** CDL2 [WD, S, PC, PS] -10WWWD927-ODLENS

## CONE OF LIGHT DIAGRAM

(diameter shown is where fc/lux value is half the fc/lux at nadir)



If distances are feet, results are footcandles.

If distances are meters, results are lux.

Note: The candela values used to generate this diagram were obtained by averaging the photometric data into a single plane.

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DATE: 8/29/2018  
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING  
CATALOG NUMBER: CDL2 [WD, WU, S, PC, PS] -10WWWD927-ODLENS

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: EXTRUDED BLACK PAINTED ALUMINUM HOUSING, 1 WHITE CIRCUIT BOARD WITH ONE LED, POLYCARBONATE TIR LENS ON TOP OF THE LED, ALUMINUM TRIM DOOR WITH GLASS LENS.

LAMP: ONE WHITE LIGHT EMITTING DIODES (LEDS).

DRIVER: RDP-010-3EV40-A026

OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (277.0 AND 120.0 VAC, 60Hz) TO THE TEST SAMPLE.

INSTRUMENTS: GWINSTEK PROGRAMMABLE AC POWER SOURCE APS-7100 Calibration Due: N/A  
CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202 3/08/19  
OCEAN OPTICS QE65PRO Spectroradiometer 08/22/19  
RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry 08/22/19

OBJECT OF TEST: Measure the Absolute Flux in lumens\*, Total Radiant Flux\*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRIa,1-14), Chromaticity Coordinates (x,y; u'v'), ANSI C78.377 Duv, and electrical data including ANSI C82.77-2002 Power Factor (PF), and Total Harmonic Distortion (THD) to the test sample. Measure electrical data including Total Harmonic Distortion (THD) at maximum nominal rated input voltage. Report Off-State Power.

PROCEDURE: The test sample was mounted inside the integrating sphere, energized, and allowed to stabilize. After stabilization occurred, measurements were taken. In order to measure mean performance, multiple data sets were recorded and averaged. Readings were taken with the test sample operating at 60 HZ input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. Electrical data was also recorded at maximum nominal rated input voltage (120.0 VAC). All data are traceable to the National Institute of Standards and Technology. Off-State Power was reported with no voltage applied to the sample.

\*NOTE: Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.

RESULTS: (continued subsequent pages)

Checked	<u>X.CAO</u>
Approved	<u>D.WANG-MUNSON</u> Lighting Engineer

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RESULTS:

<b>PHOTOMETRIC</b>	
Total Integrated Flux (lumens)	583 *
<b>SPECTRORADIOMETRIC</b>	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4623
Chromaticity Ordinate y	0.4137
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2627
Chromaticity Ordinate v'	0.5289
Correlated Color Temp CCT (K)	2689
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	2062 *
<b>ELECTRICAL</b>	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.048
Input Power (Watts)	11.7
Input Power Factor (%)	87.8
Input Current THD (%)	26.0
Input Voltage THD (%)	0.2
<b>EFFICACY (Lumens/Watt)</b>	
49.8	
<b>ELECTRICAL AT MAX NONIMAL INPUT</b>	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.093
Input Power (Watts)	11.0
Input Power Factor (%)	99.1
Input Current THD (%)	10.5
Input Voltage THD (%)	0.2
<b>Off-State Power (Watts)</b>	
0.0	

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	92
R1 Light greyish red	92
R2 Dark greyish yellow	96
R3 Strong yellowish green	98
R4 Moderate yellowish green	92
R5 Light bluish green	92
R6 Light blue	96
R7 Light violet	92
R8 Light reddish purple	81
R9 Strong red	57
R10 Strong yellow	89
R11 Strong green	93
R12 Strong blue	82
R13 Light yellowish pink (skin)	93
R14 Moderate olive green (leaf)	98

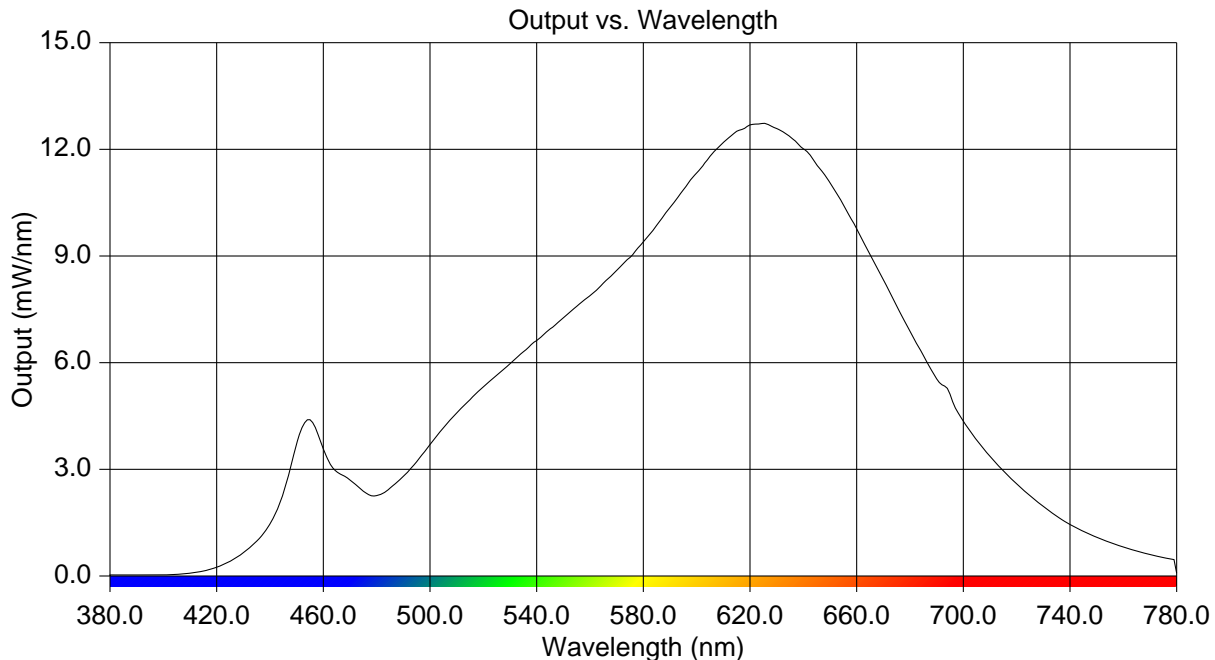
\*NOTE:

Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.

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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.029	515	4.958	650	11.060
385	0.030	520	5.321	655	10.441
390	0.028	525	5.640	660	9.771
395	0.028	530	5.967	665	9.049
400	0.030	535	6.305	670	8.336
405	0.046	540	6.622	675	7.596
410	0.079	545	6.944	680	6.884
415	0.138	550	7.261	685	6.205
420	0.248	555	7.583	690	5.544
425	0.413	560	7.887	695	5.116
430	0.655	565	8.236	700	4.358
435	0.979	570	8.593	705	3.823
440	1.460	575	8.958	710	3.355
445	2.344	580	9.396	715	2.958
450	3.706	585	9.864	720	2.598
455	4.396	590	10.373	725	2.254
460	3.574	595	10.860	730	1.951
465	2.933	600	11.329	735	1.682
470	2.700	605	11.804	740	1.451
475	2.384	610	12.191	745	1.253
480	2.263	615	12.508	750	1.094
485	2.471	620	12.688	755	0.944
490	2.799	625	12.730	760	0.813
495	3.213	630	12.585	765	0.701
500	3.689	635	12.361	770	0.603
505	4.166	640	12.014	775	0.518
510	4.582	645	11.572	780	0.078



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## CIE Chromaticity Diagram

