

REPORT NUMBER: RAB00834

ISSUE DATE: 05/05/15

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RAIL185NW

LUMINAIRE: EXTRUDED METAL HOUSING WITH HEAT SINK FINS, SIX WHITE CIRCUIT BOARD WITH NINETY SIX LEDS ON EACH BOARD, METAL REFLECTOR WITH SPECULAR FINISH, FLAT TRANSLUCENT LENS WITH FROSTED SIDE IN.

LAMPS: FIVE HUNDRED AND SEVENTY SIX LIGHT EMITTING DIODES (LEDs).

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS = 181.27 AT 120.0 VAC.

TEST PROCEDURE: IESNA LM-79-08

\*(SEE PAGE 2 FOR MORE INFORMATION)\*

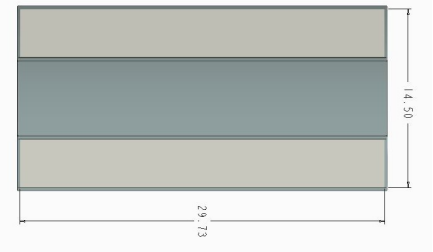
PAGE: 1 OF 8  
DATE SAMPLE TESTED: 05/05/15

### CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0
0	8408	8408	8408	8408	8408
5	8329	8361	8400	8356	8317
15	7975	7940	7908	7917	7936
25	7262	7130	6970	7079	7194
35	6231	5989	5748	5939	6147
45	4987	4689	4390	4632	4922
55	3673	3362	3081	3312	3603
65	2388	2142	1927	2092	2319
75	1204	1064	939	1023	1140
85	245	272	286	252	204
90	12	83	111	69	6
95	1	6	17	4	3
105	2	2	4	5	5
115	2	3	4	4	5
125	3	3	4	5	5
135	4	4	5	6	7
145	5	5	6	7	8
155	6	6	8	8	8
165	6	7	8	9	9
175	7	8	10	10	10
180	9	9	9	9	9

### FLUX

793
2235
3269
3731
3600
3001
2118
1125
314
20
4
4
4
4
4
3
2
1



### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	6297	31.1
0- 40	10028	49.6
0- 60	16629	82.2
0- 90	20186	99.8
90-120	27	0.1
90-130	31	0.2
90-150	39	0.2
90-180	45	0.2
0-180	20232	100.0

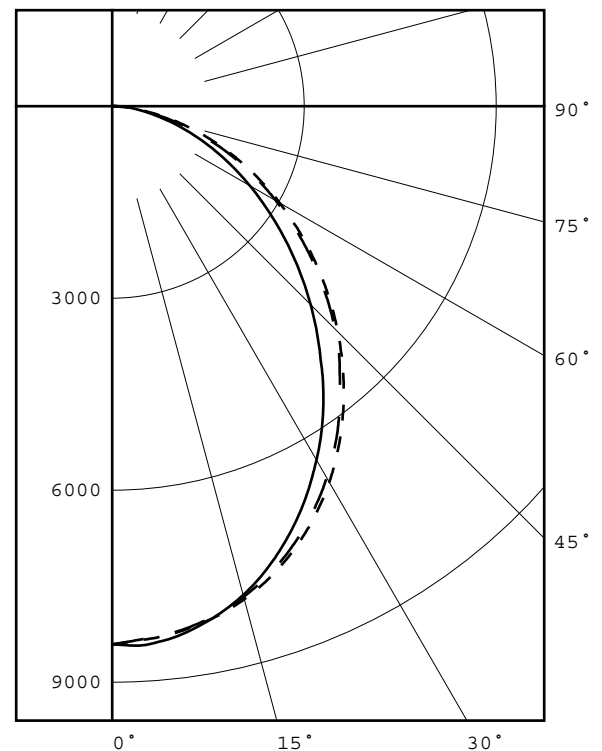
TOTAL INPUT WATTS = 181.3

EFFICACY = 111.6 Lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG 180-DEG

SPACING CRITERIA : 1.2 1.1 1.2



LEGEND:

0-deg: - - - - -  
90-deg: \_\_\_\_\_  
180-deg: - - - - -

Checked

X.CAO

Approved

D.WANG-MUNSON

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PAGE: 2 OF 8  
DATE SAMPLE TESTED: 05/05/15

ADDITIONAL INFORMATION

TEST DISTANCE: 28.25 FEET  
DRIVER: 2 X RD-085-A1750  
LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE  
ACCREDITED LABORATORY CODE 201058-0

REPORT NUMBER: RAB00834  
ISSUE DATE: 05/05/15  
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PAGE: 3 OF 8  
DATE SAMPLE TESTED: 05/05/15

PLANE : 0-DEG 90-DEG  
BEAM ANGLE (50%) : 101.2 X 92.5 DEGREES  
FIELD ANGLE (10%) : 156.1 X 152.3 DEGREES



REPORT NUMBER: RAB00834  
ISSUE DATE: 05/05/15  
PREPARED FOR: RAB LIGHTING INC.

PAGE: 5 OF 8  
DATE SAMPLE TESTED: 05/05/15

## ZONAL LUMEN SUMMARY

0- 5	201.
5- 10	593.
10- 15	957.
15- 20	1278.
20- 25	1539.
25- 30	1730.
30- 35	1847.
35- 40	1884.
40- 45	1849.
45- 50	1751.
50- 55	1597.
55- 60	1403.
60- 65	1180.
65- 70	937.
70- 75	685.
75- 80	440.
80- 85	229.
85- 90	85.
90- 95	18.
95-100	2.
100-105	2.
105-110	2.
110-115	2.
115-120	2.
120-125	2.
125-130	2.
130-135	2.
135-140	2.
140-145	2.
145-150	2.
150-155	2.
155-160	2.
160-165	1.
165-170	1.
170-175	1.
175-180	0.

REPORT NUMBER: RAB00834  
 ISSUE DATE: 05/05/15  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 8  
 DATE SAMPLE TESTED: 05/05/15

### 5-DEGREE ZONAL LUMEN SUMMARY

0- 5	201
5- 10	593
10- 15	957
15- 20	1278
20- 25	1539
25- 30	1730
30- 35	1847
35- 40	1884
40- 45	1849
45- 50	1751
50- 55	1597
55- 60	1403
60- 65	1180
65- 70	937
70- 75	685
75- 80	440
80- 85	229
85- 90	85
90- 95	18
95-100	2
100-105	2
105-110	2
110-115	2
115-120	2
120-125	2
125-130	2
130-135	2
135-140	2
140-145	2
145-150	2
150-155	2
155-160	2
160-165	1
165-170	1
170-175	1
175-180	0

### 10-DEGREE ZONAL LUMEN SUMMARY

0- 10	793
0- 20	3028
0- 30	6297
0- 40	10028
0- 50	13628
0- 60	16629
0- 70	18747
0- 80	19872
0- 90	20186
0-100	20206
0-110	20210
0-120	20214
0-130	20217
0-140	20221
0-150	20225
0-160	20229
0-170	20231
0-180	20232

REPORT NUMBER: RAB00834  
ISSUE DATE: 05/05/15

PAGE: 7 OF 8  
DATE SAMPLE TESTED: 05/05/15

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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	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	92	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	76	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	38	48	43	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	35	45	39	34	32
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

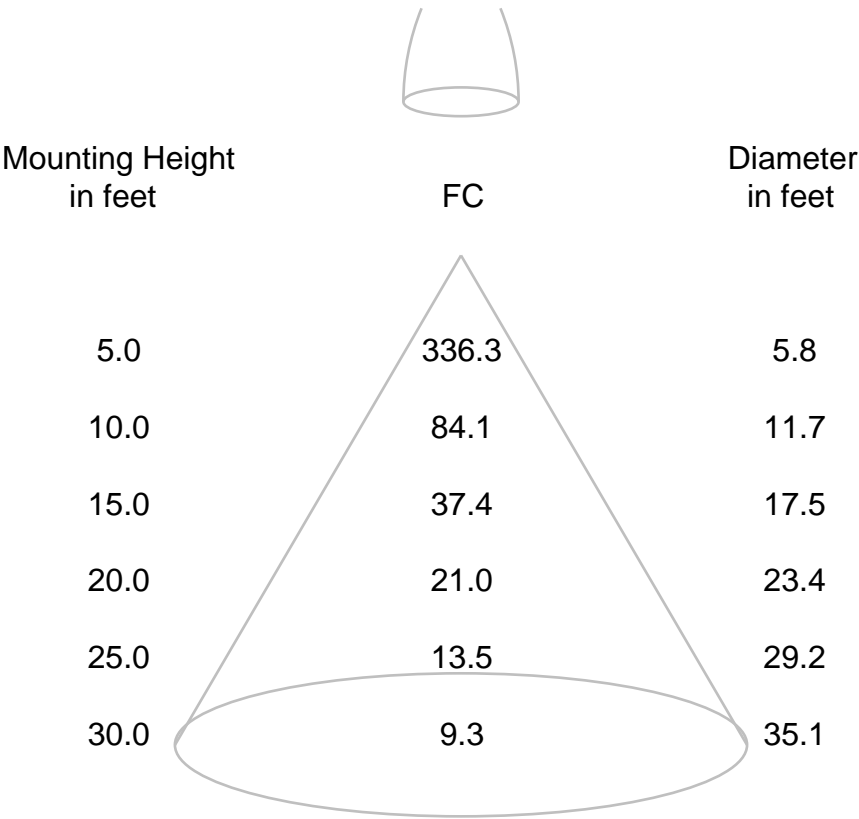
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

REPORT NUMBER: RAB00834  
ISSUE DATE: 05/05/15  
PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 8  
DATE SAMPLE TESTED: 05/05/15

# CONE OF LIGHT DIAGRAM

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



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



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PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: RAIL185NW

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: EXTRUDED METAL HOUSING WITH HEAT SINK FINS, SIX WHITE CIRCUIT BOARD WITH NINETY SIX LEDS ON EACH BOARD, METAL REFLECTOR WITH SPECULAR FINISH, FLAT TRANSLUCENT LENS WITH FROSTED SIDE IN.

LAMP: FIVE HUNDRED AND SEVENTY SIX LIGHT EMITTING DIODES (LEDs).

DRIVER: 2 X RD-085-A1750

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

INSTRUMENTS:	CHROMA PROGRAMMABLE AC POWER SOURCE MODEL 61602	Calibration Due: N/A
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	3/9/16
	OCEAN OPTICS QE65PRO Spectroradiometer	5/15/16
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	5/15/16

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 (277.0 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 X.CAO

Approved D.WANG-MUNSON  
Lighting Engineer

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 CATALOG NUMBER: RAIL185NW

Page 2 of 4

### RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	20232 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3829
Chromaticity Ordinate y	0.3760
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2271
Chromaticity Ordinate v'	0.5016
Correlated Color Temp CCT (K)	3926
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	62824 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	1.52
Input Power (Watts)	181.3
Input Power Factor (%)	99.4
Input Current THD (%)	4.9
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	111.6
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.671
Input Power (Watts)	176.9
Input Power Factor (%)	95.2
Input Current THD (%)	11.7
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	85
R1 Light greyish red	83
R2 Dark greyish yellow	91
R3 Strong yellowish green	95
R4 Moderate yellowish green	82
R5 Light bluish green	83
R6 Light blue	87
R7 Light violet	86
R8 Light reddish purple	68
R9 Strong red	19
R10 Strong yellow	78
R11 Strong green	80
R12 Strong blue	62
R13 Light yellowish pink (skin)	86
R14 Moderate olive green (leaf)	98

### \*NOTE:

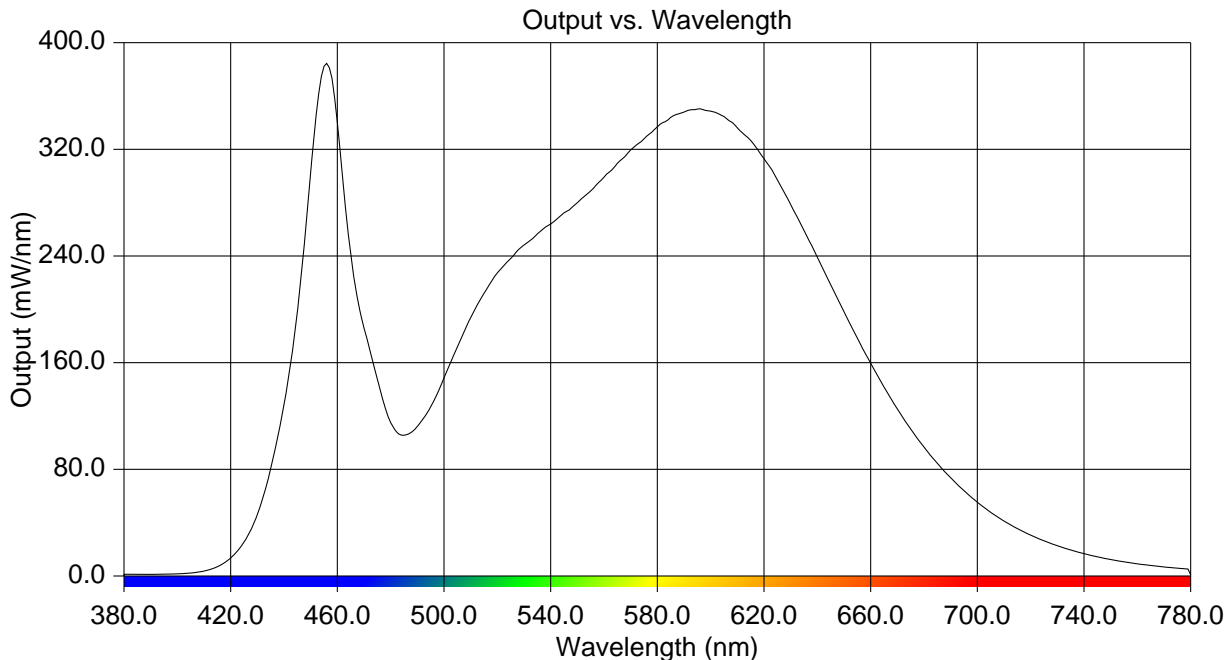
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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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Page 3 of 4

### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	1.189	515	211.858	650	198.327
385	1.255	520	227.424	655	178.473
390	1.269	525	238.103	660	159.816
395	1.303	530	248.289	665	141.776
400	1.608	535	256.545	670	125.297
405	2.241	540	263.978	675	110.168
410	3.644	545	272.363	680	96.608
415	6.943	550	279.946	685	84.404
420	13.518	555	288.698	690	73.467
425	25.227	560	299.128	695	64.140
430	46.160	565	309.467	700	55.474
435	80.540	570	319.444	705	47.732
440	129.259	575	327.837	710	41.261
445	197.487	580	336.862	715	35.542
450	301.998	585	343.919	720	30.597
455	382.242	590	347.967	725	26.373
460	340.242	595	350.189	730	22.663
465	241.752	600	348.492	735	19.488
470	185.926	605	344.598	740	16.777
475	147.684	610	336.114	745	14.407
480	115.028	615	326.686	750	12.372
485	105.574	620	313.007	755	10.589
490	112.041	625	297.269	760	9.149
495	126.928	630	278.601	765	7.852
500	148.629	635	259.185	770	6.798
505	171.823	640	239.089	775	5.854
510	193.553	645	218.414	780	0.885



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Page 4 of 4

## CIE Chromaticity Diagram

