

REPORT NUMBER: RAB00839

ISSUE DATE: 05/07/15

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RAIL225W

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), DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT LED

(SEE PAGE 2 FOR MORE INFORMATION)

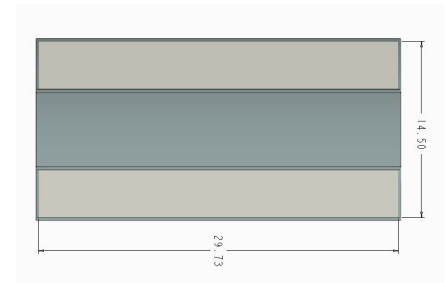
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CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	
0	11287	11287	11287	11287	11287	
5	11175	11221	11282	11227	11179	1065
15	10691	10669	10646	10667	10692	3004
25	9728	9571	9411	9570	9726	4400
35	8346	8051	7760	8046	8342	5027
45	6668	6278	5917	6277	6671	4848
55	4889	4520	4159	4518	4938	4049
65	3164	2874	2617	2887	3209	2868
75	1601	1421	1300	1436	1620	1533
85	308	367	402	371	327	432
90	11	110	160	111	16	
95	1	6	25	8	4	27
105	2	3	4	5	5	4
115	2	3	4	5	5	4
125	3	3	4	5	5	4
135	3	4	5	6	6	4
145	5	5	6	7	8	4
155	5	6	7	8	8	3
165	6	7	8	9	9	2
175	6	8	10	10	9	1
180	9	9	9	9	9	

FLUX



ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	8469	31.0
0- 40	13496	49.5
0- 60	22393	82.1
0- 90	27227	99.8
90-120	35	0.1
90-130	39	0.1
90-150	46	0.2
90-180	53	0.2
0-180	27279	100.0

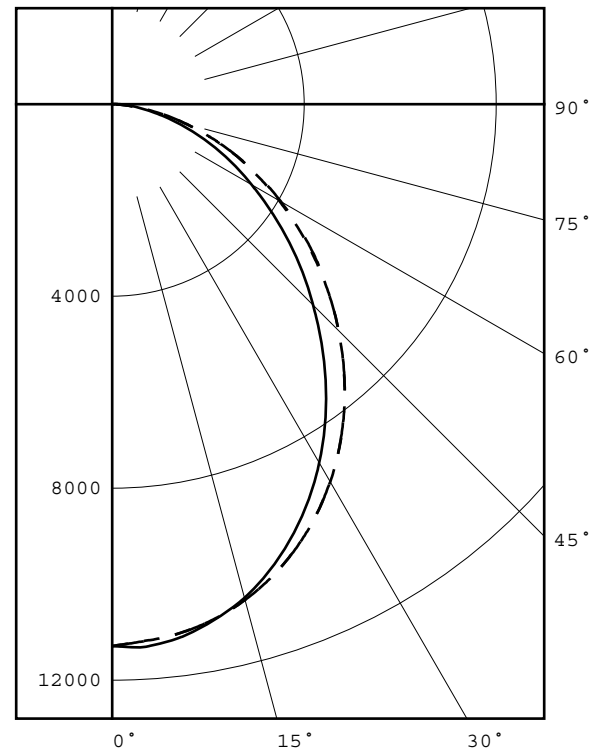
TOTAL INPUT WATTS = 223.3

EFFICACY = 122.2 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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ADDITIONAL INFORMATION

DRIVER: RD-144-Q0700-R + RD-075-A1400
NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

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PLANE : 0-DEG 90-DEG
BEAM ANGLE (50%) : 101.4 X 92.9 DEGREES
FIELD ANGLE (10%) : 156.6 X 153.0 DEGREES

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ZONAL LUMEN SUMMARY

0- 5	269.
5- 10	796.
10- 15	1286.
15- 20	1718.
20- 25	2070.
25- 30	2330.
30- 35	2487.
35- 40	2539.
40- 45	2491.
45- 50	2357.
50- 55	2154.
55- 60	1895.
60- 65	1596.
65- 70	1271.
70- 75	932.
75- 80	601.
80- 85	314.
85- 90	118.
90- 95	25.
95-100	3.
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.

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	269
5- 10	796
10- 15	1286
15- 20	1718
20- 25	2070
25- 30	2330
30- 35	2487
35- 40	2539
40- 45	2491
45- 50	2357
50- 55	2154
55- 60	1895
60- 65	1596
65- 70	1271
70- 75	932
75- 80	601
80- 85	314
85- 90	118
90- 95	25
95-100	3
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	1065
0- 20	4070
0- 30	8469
0- 40	13496
0- 50	18344
0- 60	22393
0- 70	25261
0- 80	26794
0- 90	27227
0-100	27254
0-110	27258
0-120	27262
0-130	27265
0-140	27269
0-150	27273
0-160	27276
0-170	27278
0-180	27279

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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	95	98	95	92	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	75	80	77	74	72
3	91	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	75	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	34	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

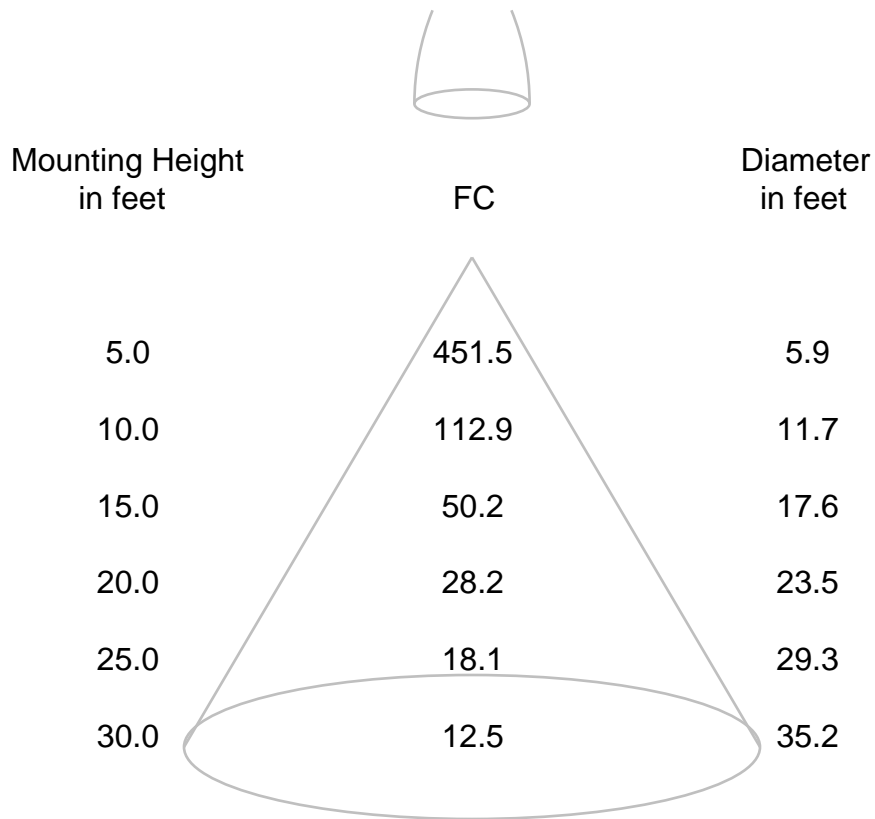
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

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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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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: RD-144-Q0700-R + RD-075-A1400

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

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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	27279 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3451
Chromaticity Ordinate y	0.3538
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2106
Chromaticity Ordinate v'	0.4858
Correlated Color Temp CCT (K)	5006
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	82391 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	1.87
Input Power (Watts)	223.3
Input Power Factor (%)	99.5
Input Current THD (%)	4.5
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	122.2
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.834
Input Power (Watts)	219.1
Input Power Factor (%)	94.8
Input Current THD (%)	9.8
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	74
R1 Light greyish red	73
R2 Dark greyish yellow	79
R3 Strong yellowish green	82
R4 Moderate yellowish green	75
R5 Light bluish green	73
R6 Light blue	71
R7 Light violet	82
R8 Light reddish purple	60
R9 Strong red	-19
R10 Strong yellow	49
R11 Strong green	73
R12 Strong blue	47
R13 Light yellowish pink (skin)	73
R14 Moderate olive green (leaf)	90

*NOTE:

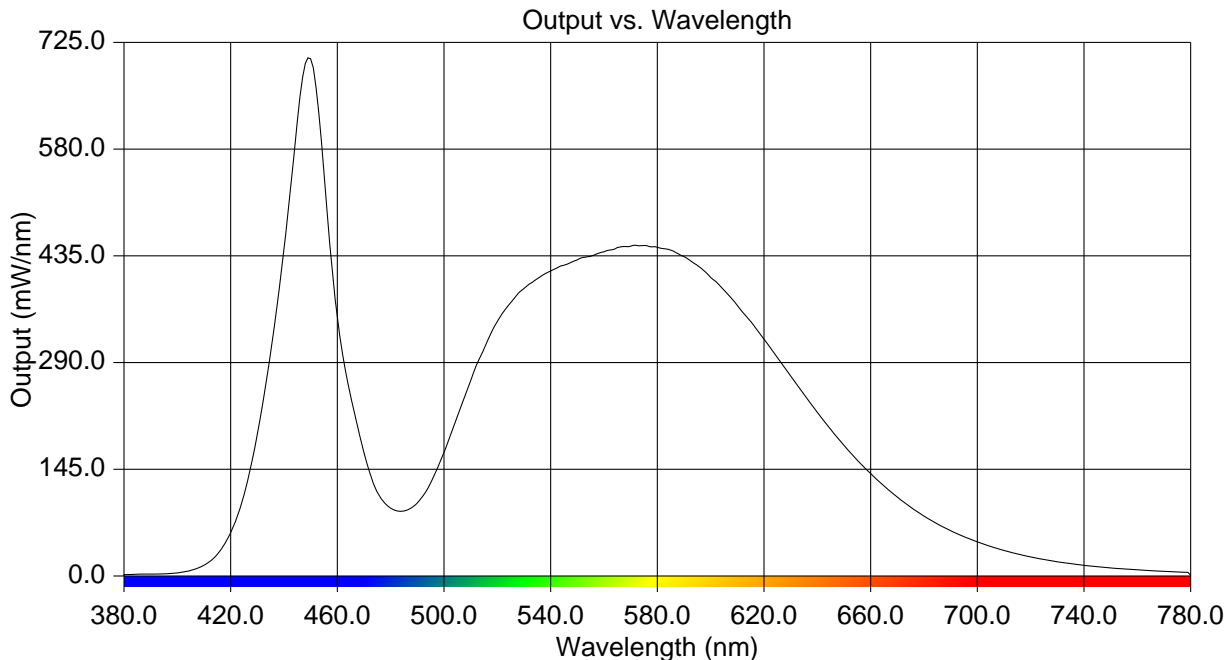
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	1.838	515	308.801	650	177.736
385	2.112	520	345.982	655	157.294
390	2.439	525	371.129	660	139.433
395	3.060	530	390.883	665	122.297
400	4.445	535	404.165	670	107.289
405	7.353	540	414.717	675	93.578
410	14.359	545	422.515	680	81.223
415	29.500	550	429.735	685	70.866
420	58.947	555	434.520	690	61.432
425	110.749	560	440.628	695	53.445
430	192.852	565	446.449	700	46.390
435	304.484	570	448.327	705	40.040
440	445.192	575	449.268	710	34.560
445	618.327	580	446.877	715	29.963
450	703.009	585	442.991	720	25.798
455	548.014	590	434.203	725	22.485
460	351.491	595	422.494	730	19.398
465	244.405	600	405.838	735	16.792
470	167.379	605	388.850	740	14.576
475	114.081	610	367.759	745	12.616
480	92.108	615	346.066	750	10.934
485	88.580	620	321.904	755	9.482
490	99.197	625	297.568	760	8.266
495	126.483	630	271.881	765	7.150
500	168.609	635	246.970	770	6.294
505	216.123	640	222.508	775	5.437
510	265.470	645	199.457	780	0.833



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CIE Chromaticity Diagram

