

REPORT NUMBER: RAB02094

ISSUE DATE: 06/17/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RDLED2AR8-40N-TW

LUMINAIRE: FABRICATED METAL UPPER HOUSING AND BALLAST HOUSING, CAST BLACK PAINTED FINNED METAL HEAT SINK, CAST WHITE PAINTED METAL GIMBAL, 1 WHITE CIRCUIT BOARD WITH ONE LED, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, HOLOGRAPHIC FLAT PLASTIC LENS, CAST WHITE METAL LOWER HOUSING.

LAMP: ONE WHITE MULTI-CHIP LIGHT EMITTING DIODE (LED) WITH CLEAR HEMISPHERICAL INTEGRAL LENS, VERTICAL BASE-UP POSITION.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS: 8.2467 W AT 120.0 VOLTS

(SEE PAGE 2 FOR MORE INFORMATION)

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DEG	CANDELA	LUMENS
0	1196	
5	1167	108
15	854	234
25	444	203
35	179	114
45	58	47
55	28	26
65	17	17
75	9	10
85	3	4
90	0	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	546	71.5
0- 40	660	86.4
0- 60	733	96.0
0- 90	763	100.0
90-180	0	0.0
0-180	763	100.0

TOTAL INPUT WATTS = 8.2

EFFICACY = 93.0 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 0.7

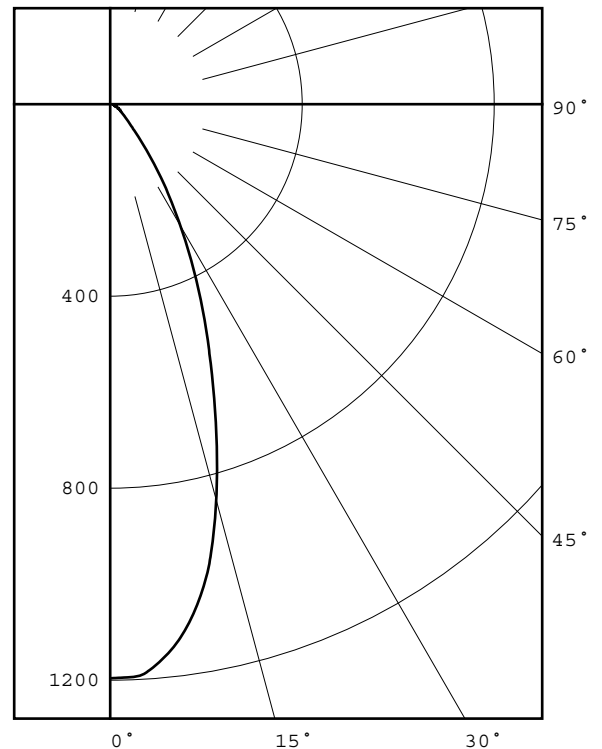
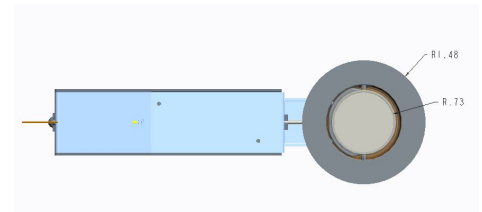
LUMINOUS DIAMETER: 0.730

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45 303656.
55 180720.
65 148916.
75 128732.
85 127428.



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

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ADDITIONAL INFORMATION

TEST PROCEDURE: IESNA LM-79-08
TEST DISTANCE: 28.25 FEET
PREPARED FOR: RAB LIGHTING INC.
LED DRIVER: RD-008-E1-A0200

ACCREDITED LABORATORY CODE 201085-0

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.

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BEAM ANGLE (50%) : 41.5 DEGREES
FIELD ANGLE (10%): 77.1 DEGREES

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CANDELA DISTRIBUTION

	0.0
0.0	1196
2.5	1194
5.0	1167
7.5	1121
10.0	1054
12.5	966
15.0	854
17.5	737
20.0	628
22.5	530
25.0	444
27.5	363
30.0	293
32.5	232
35.0	179
37.5	134
40.0	99
42.5	74
45.0	58
47.5	47
50.0	39
52.5	33
55.0	28
57.5	25
60.0	22
62.5	19
65.0	17
67.5	15
70.0	13
72.5	11
75.0	9
77.5	8
80.0	6
82.5	5
85.0	3
87.5	2
90.0	0

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ZONAL LUMEN SUMMARY

0- 5	28.
5- 10	79.
10- 15	113.
15- 20	121.
20- 25	111.
25- 30	92.
30- 35	69.
35- 40	45.
40- 45	28.
45- 50	19.
50- 55	14.
55- 60	12.
60- 65	9.
65- 70	8.
70- 75	6.
75- 80	4.
80- 85	3.
85- 90	1.

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	28
5- 10	79
10- 15	113
15- 20	121
20- 25	111
25- 30	92
30- 35	69
35- 40	45
40- 45	28
45- 50	19
50- 55	14
55- 60	12
60- 65	9
65- 70	8
70- 75	6
75- 80	4
80- 85	3
85- 90	1
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	108
0- 20	342
0- 30	546
0- 40	660
0- 50	707
0- 60	733
0- 70	750
0- 80	760
0- 90	763
0-100	763
0-110	763
0-120	763
0-130	763
0-140	763
0-150	763
0-160	763
0-170	763
0-180	763

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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	113	110	107	105	111	108	106	103	104	102	100	100	99	97	97	95	94	93
2	107	102	98	94	105	100	96	93	97	94	91	94	91	89	91	89	87	86
3	102	95	90	86	100	94	89	85	91	87	84	89	85	82	86	83	81	79
4	97	89	83	79	95	88	82	78	86	81	77	83	80	77	82	78	76	74
5	92	83	77	73	90	82	77	73	81	76	72	79	75	71	77	74	71	69
6	87	78	72	68	86	78	72	68	76	71	67	75	70	67	73	70	67	65
7	83	74	68	64	82	73	68	64	72	67	63	71	66	63	70	66	63	61
8	80	70	64	60	78	70	64	60	68	63	60	67	63	59	66	62	59	58
9	76	67	61	57	75	66	61	57	65	60	56	64	60	56	63	59	56	55
10	73	63	58	54	72	63	57	54	62	57	54	61	57	53	61	56	53	52

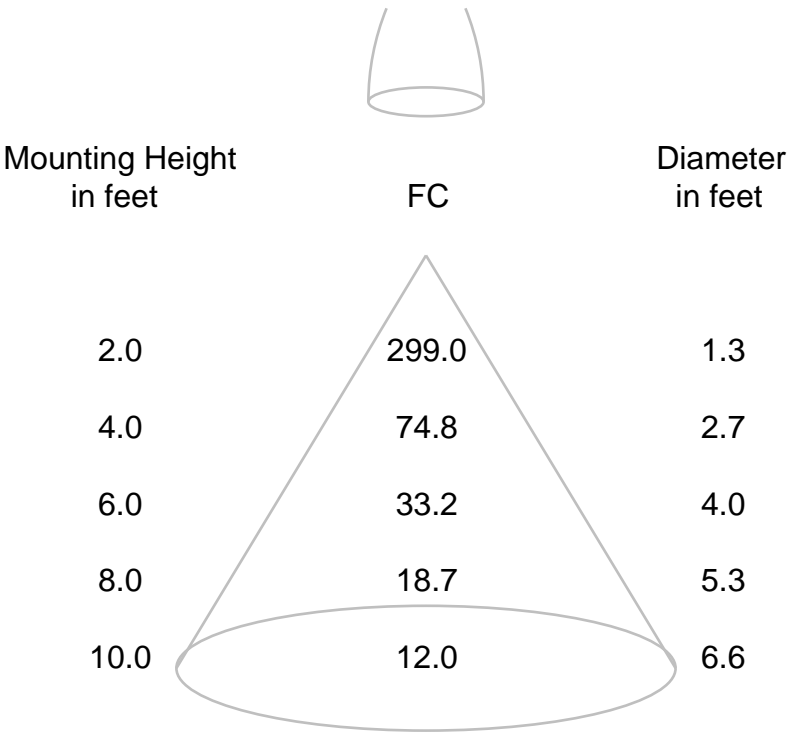
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

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CONE OF LIGHT DIAGRAM

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



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ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: FABRICATED METAL UPPER HOUSING AND BALLAST HOUSING, CAST BLACK PAINTED FINNED METAL HEAT SINK, CAST WHITE PAINTED METAL GIMBAL, 1 WHITE CIRCUIT BOARD WITH ONE LED, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, HOLOGRAPHIC FLAT PLASTIC LENS, CAST WHITE METAL LOWER HOUSING.

LAMP: ONE WHITE MULTI-CHIP LIGHT EMITTING DIODE (LED) WITH CLEAR HEMISPHERICAL INTEGRAL LENS, VERTICALBASE-UP POSITION.

DRIVER: RD-008-E1-A0200

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120.0 VAC , 60Hz) TO THE TEST SAMPLE.

INSTRUMENTS:	GWINSTEK PROGRAMMABLE AC POWER SOURCE APS-7100	Calibration Due:
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	N/A
	OCEAN OPTICS QE65PRO Spectroradiometer	2/26/17
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	5/31/17

OBJECT OF TEST: Measure the Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRI_a,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. Report Off-State Power.

PROCEDURE: The test sample was provided by the customer and had an unknown number of burn hours. The test sample was mounted inside the integrating sphere 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 120.0 VAC input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. 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:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3855
Chromaticity Ordinate y	0.3848
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2253
Chromaticity Ordinate v'	0.5058
Correlated Color Temp CCT (K)	3924
Color Rendering Index (CRIa)	83
Color Rendering Index 1 (Light greyish red)	81
Color Rendering Index 2 (Dark greyish yellow)	90
Color Rendering Index 3 (Strong yellowish green)	96
Color Rendering Index 4 (Moderate yellowish green)	79
Color Rendering Index 5 (Light bluish green)	80
Color Rendering Index 6 (Light blue)	86
Color Rendering Index 7 (Light violet)	86
Color Rendering Index 8 (Light reddish purple)	65
Color Rendering Index 9 (Strong red)	12
Color Rendering Index 10 (Strong yellow)	76
Color Rendering Index 11 (Strong green)	76
Color Rendering Index 12 (Strong blue)	58
Color Rendering Index 13 (Light yellowish pink (skin))	84
Color Rendering Index 14 (Moderate olive green (leaf))	98
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	2326 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.071
Input Power (Watts)	8.25
Input Power Factor (%)	97.2
Input Current THD (%)	21.4
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

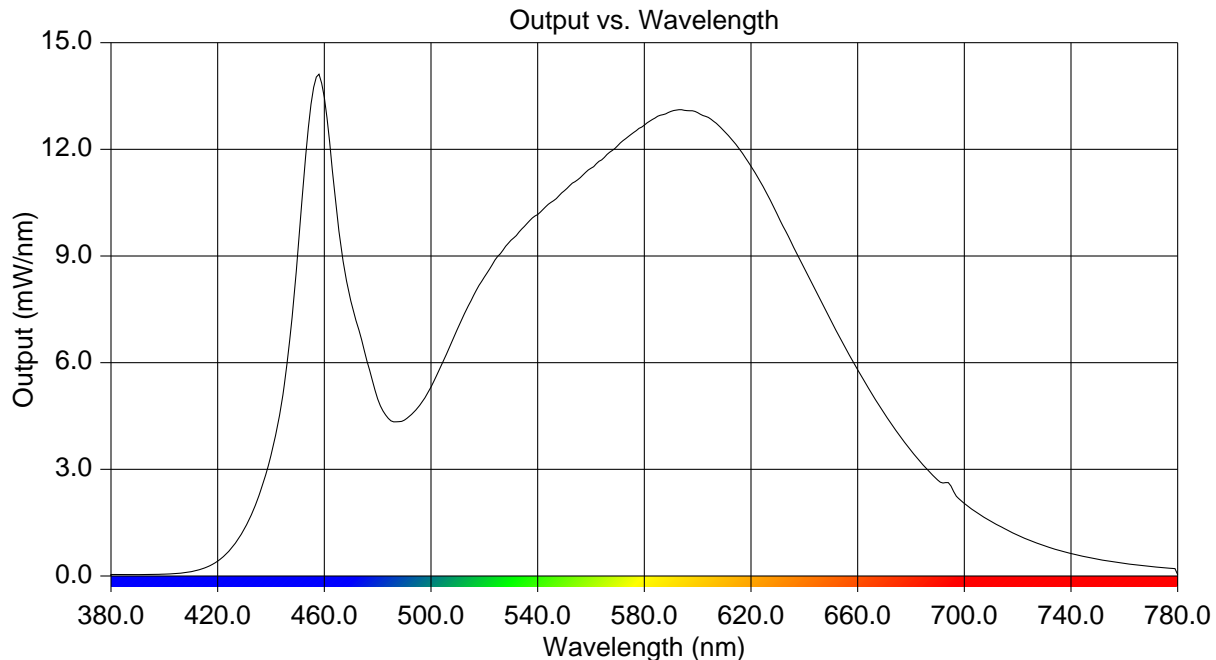
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.042	515	7.739	650	7.173
385	0.041	520	8.406	655	6.475
390	0.040	525	8.988	660	5.800
395	0.042	530	9.443	665	5.164
400	0.052	535	9.830	670	4.567
405	0.071	540	10.165	675	4.032
410	0.122	545	10.509	680	3.527
415	0.223	550	10.834	685	3.079
420	0.419	555	11.143	690	2.699
425	0.767	560	11.468	695	2.530
430	1.319	565	11.772	700	2.039
435	2.161	570	12.102	705	1.770
440	3.408	575	12.418	710	1.532
445	5.383	580	12.679	715	1.335
450	9.045	585	12.931	720	1.148
455	13.268	590	13.067	725	0.985
460	13.460	595	13.097	730	0.852
465	10.026	600	13.032	735	0.732
470	7.713	605	12.847	740	0.628
475	6.336	610	12.502	745	0.544
480	4.980	615	12.075	750	0.473
485	4.363	620	11.524	755	0.407
490	4.383	625	10.899	760	0.354
495	4.726	630	10.142	765	0.308
500	5.310	635	9.400	770	0.266
505	6.103	640	8.664	775	0.231
510	6.965	645	7.912	780	0.035



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CIE Chromaticity Diagram

