

REPORT NUMBER: RAB01207

ISSUE DATE: 09/30/15

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RDLED2R8-20YHC-TW (2" Round recessed downlight - narrow beam - >90 High CRI)

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

LAMP: ONE WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-UP POSITION.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS: 8.3312 W AT 120.0 VOLTS

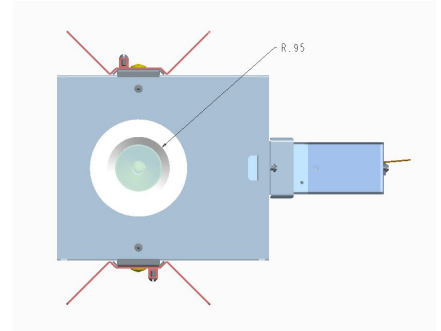
TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE: 28.25 FEET

PREPARED FOR: RAB LIGHTING INC.

LED DRIVER: RD-008-E1-A0200

ACCREDITED LABORATORY CODE 201085-0



DEG	CANDELA	LUMENS
0	3004	
5	2548	203
15	595	181
25	238	112
35	121	74
45	17	17
55	8	7
65	3	3
75	1	1
85	0	0
90	0	

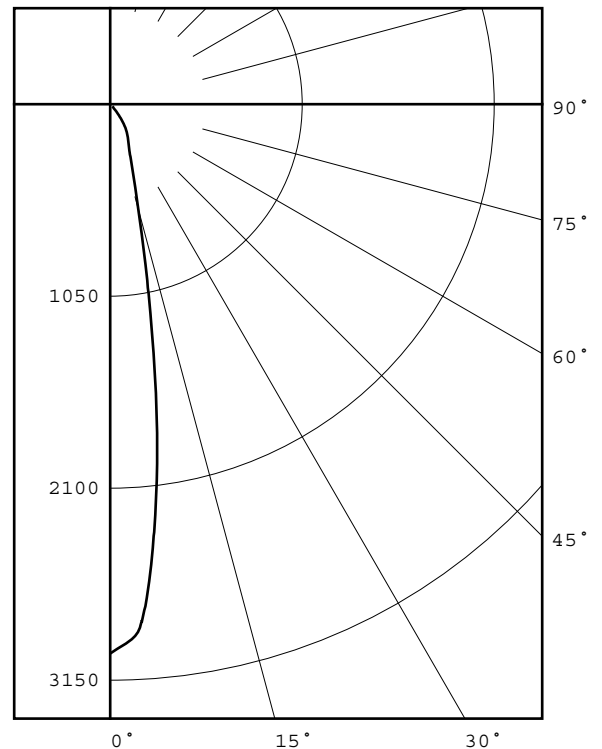
ZONAL LUMEN	SUMMARY	
ZONE	LUMENS	%FIXT
0- 30	496	82.9
0- 40	570	95.2
0- 60	594	99.2
0- 90	599	100.0
90-180	0	0.0
0-180	599	100.0

TOTAL INPUT WATTS = 8.3

EFFICACY = 72.2 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 0.3



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

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PAGE: 2 OF 7
DATE SAMPLE TESTED: 09/30/15

BEAM ANGLE (50%) : 18.8 DEGREES
FIELD ANGLE (10%) : 42.9 DEGREES

REPORT NUMBER: RAB01207
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PAGE: 3 OF 7
DATE SAMPLE TESTED: 09/30/15

CANDELA DISTRIBUTION

	0.0
0.0	3004
2.5	2923
5.0	2548
7.5	1967
10.0	1354
12.5	883
15.0	595
17.5	432
20.0	335
22.5	276
25.0	238
27.5	210
30.0	185
32.5	157
35.0	121
37.5	85
40.0	51
42.5	29
45.0	17
47.5	13
50.0	10
52.5	9
55.0	8
57.5	7
60.0	5
62.5	4
65.0	3
67.5	2
70.0	2
72.5	2
75.0	1
77.5	1
80.0	1
82.5	0
85.0	0
87.5	0
90.0	0

REPORT NUMBER: RAB01207
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PAGE: 4 OF 7
DATE SAMPLE TESTED: 09/30/15

ZONAL LUMEN SUMMARY

0- 5	67.
5- 10	137.
10- 15	108.
15- 20	73.
20- 25	59.
25- 30	53.
30- 35	45.
35- 40	28.
40- 45	12.
45- 50	5.
50- 55	4.
55- 60	3.
60- 65	2.
65- 70	1.
70- 75	1.
75- 80	1.
80- 85	0.
85- 90	0.

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PAGE: 5 OF 7
 DATE SAMPLE TESTED: 09/30/15

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	67
5- 10	137
10- 15	108
15- 20	73
20- 25	59
25- 30	53
30- 35	45
35- 40	28
40- 45	12
45- 50	5
50- 55	4
55- 60	3
60- 65	2
65- 70	1
70- 75	1
75- 80	1
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	203
0- 20	385
0- 30	496
0- 40	570
0- 50	587
0- 60	594
0- 70	597
0- 80	599
0- 90	599
0-100	599
0-110	599
0-120	599
0-130	599
0-140	599
0-150	599
0-160	599
0-170	599
0-180	599

REPORT NUMBER: RAB01207
ISSUE DATE: 09/30/15

PAGE: 6 OF 7
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

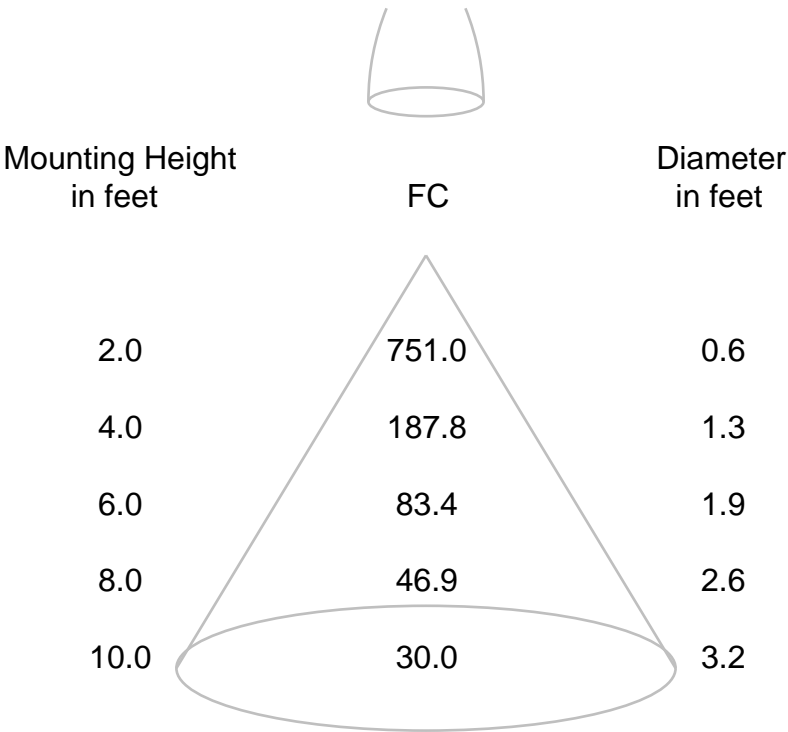
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	110	108	112	110	108	106	106	105	103	102	101	100	99	98	97	96
2	110	106	103	100	108	104	101	99	101	99	97	98	96	95	96	94	93	91
3	106	101	97	93	104	99	96	93	97	94	91	94	92	90	92	90	88	87
4	102	96	91	88	100	95	91	87	93	89	86	91	88	85	89	87	85	83
5	98	92	87	83	97	91	86	83	89	85	82	87	84	82	86	83	81	80
6	95	88	83	80	94	87	83	79	86	82	79	84	81	78	83	80	78	77
7	92	84	80	76	91	84	79	76	83	79	76	81	78	75	80	77	75	74
8	89	81	77	73	88	81	76	73	80	76	73	79	75	73	78	75	72	71
9	86	78	74	71	85	78	74	71	77	73	70	76	73	70	76	72	70	69
10	83	76	71	68	83	75	71	68	75	71	68	74	70	68	73	70	68	67

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: RAB01207	PAGE: 7 OF 7
ISSUE DATE: 09/30/15	DATE SAMPLE TESTED: 09/30/15
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CONE OF LIGHT DIAGRAM

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



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Page 1 of 4

ADDRESS: 170 LUDLOW AVE, NORTHVALE. NJ 07647

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

LAMP: ONE WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-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:	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	8/21/16
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	8/21/16

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 X.CAO

Approved D.WANG-MUNSON
Lighting Engineer

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Page 2 of 4

RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4368
Chromaticity Ordinate y	0.4044
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2504
Chromaticity Ordinate v'	0.5215
Correlated Color Temp CCT (K)	3004
Color Rendering Index (CRIa)	92
Color Rendering Index 1 (Light greyish red)	92
Color Rendering Index 2 (Dark greyish yellow)	95
Color Rendering Index 3 (Strong yellowish green)	97
Color Rendering Index 4 (Moderate yellowish green)	92
Color Rendering Index 5 (Light bluish green)	92
Color Rendering Index 6 (Light blue)	94
Color Rendering Index 7 (Light violet)	93
Color Rendering Index 8 (Light reddish purple)	82
Color Rendering Index 9 (Strong red)	59
Color Rendering Index 10 (Strong yellow)	88
Color Rendering Index 11 (Strong green)	92
Color Rendering Index 12 (Strong blue)	80
Color Rendering Index 13 (Light yellowish pink (skin))	93
Color Rendering Index 14 (Moderate olive green (leaf))	97
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	2071 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.071
Input Power (Watts)	8.33
Input Power Factor (%)	97.8
Input Current THD (%)	19.7
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

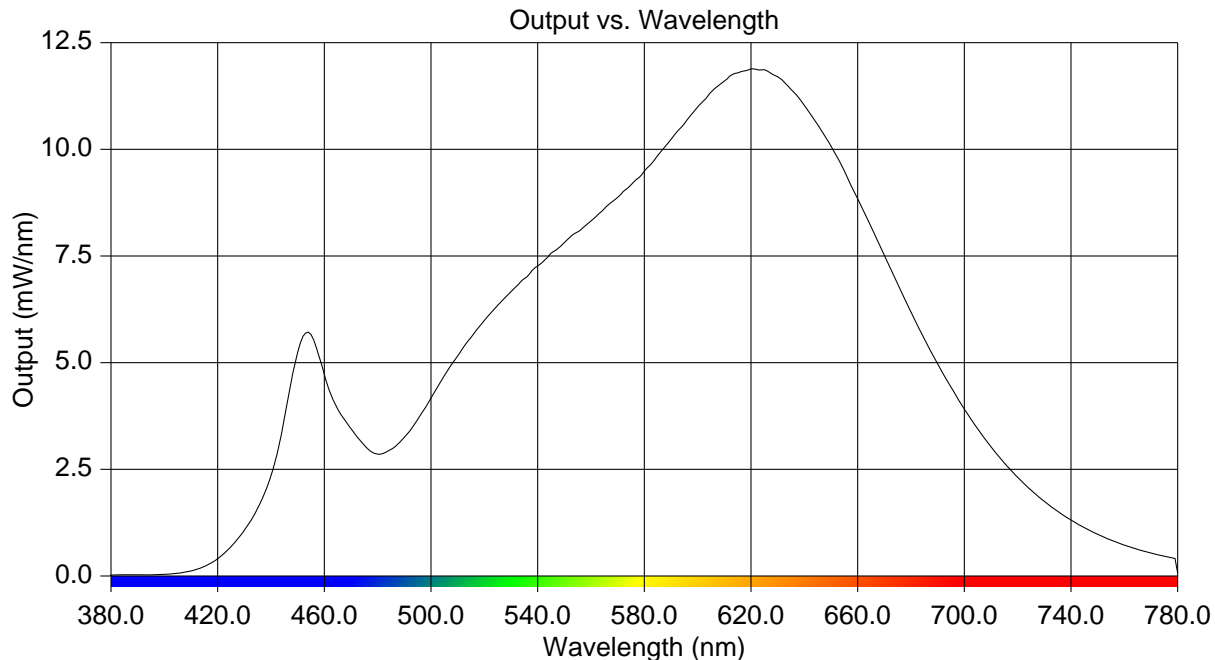
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Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.022	515	5.590	650	10.071
385	0.024	520	5.991	655	9.495
390	0.025	525	6.337	660	8.839
395	0.029	530	6.669	665	8.192
400	0.040	535	6.969	670	7.521
405	0.063	540	7.264	675	6.843
410	0.116	545	7.564	680	6.186
415	0.224	550	7.809	685	5.560
420	0.403	555	8.065	690	4.970
425	0.687	560	8.319	695	4.426
430	1.068	565	8.608	700	3.918
435	1.588	570	8.871	705	3.445
440	2.341	575	9.167	710	3.027
445	3.683	580	9.488	715	2.648
450	5.253	585	9.856	720	2.313
455	5.660	590	10.232	725	2.013
460	4.725	595	10.600	730	1.745
465	3.911	600	10.990	735	1.514
470	3.449	605	11.343	740	1.309
475	3.065	610	11.598	745	1.132
480	2.856	615	11.792	750	0.976
485	2.967	620	11.886	755	0.842
490	3.254	625	11.867	760	0.722
495	3.668	630	11.693	765	0.625
500	4.171	635	11.405	770	0.537
505	4.696	640	11.036	775	0.463
510	5.157	645	10.575	780	0.069



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Page 4 of 4

CIE Chromaticity Diagram

