

REPORT NUMBER: RAB01066

ISSUE DATE: 08/12/15

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RDLED2R8-40YYHC-TW (2" Round recessed downlight - wide 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: 8.2402 W AT 120.0 VOLTS

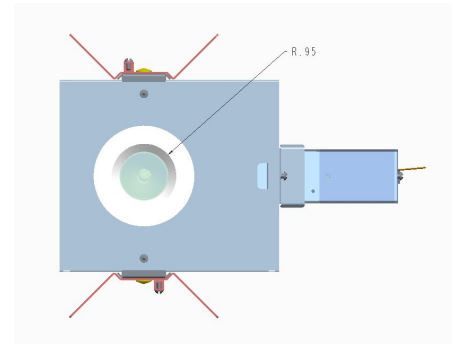
TEST PROCEDURE: IESNA LM-79-08

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	771	
5	763	71
15	578	159
25	302	138
35	110	69
45	14	14
55	5	4
65	3	3
75	1	1
85	0	0
90	0	

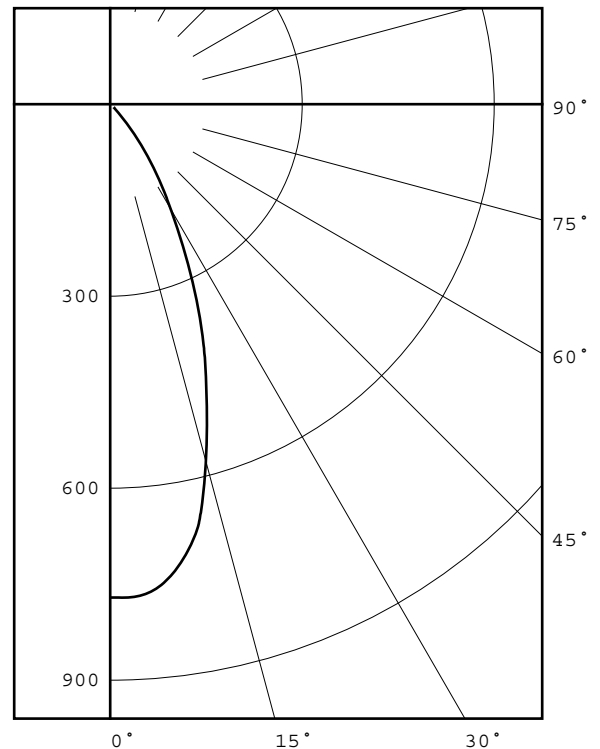
ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	369	80.2
0- 40	438	95.2
0- 60	456	99.1
0- 90	460	100.0
90-180	0	0.0
0-180	460	100.0

TOTAL INPUT WATTS = 8.2

EFFICACY = 56.1 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 0.7



Checked X.CAO
Approved D.WANG-MUNSON

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BEAM ANGLE (50%) : 43.8 DEGREES
FIELD ANGLE (10%) : 74.8 DEGREES

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CANDELA DISTRIBUTION

	0.0
0.0	771
2.5	771
5.0	763
7.5	741
10.0	706
12.5	654
15.0	578
17.5	502
20.0	435
22.5	370
25.0	302
27.5	241
30.0	189
32.5	147
35.0	110
37.5	76
40.0	46
42.5	24
45.0	14
47.5	9
50.0	7
52.5	6
55.0	5
57.5	4
60.0	3
62.5	3
65.0	3
67.5	2
70.0	2
72.5	2
75.0	1
77.5	1
80.0	0
82.5	0
85.0	0
87.5	0
90.0	0

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ZONAL LUMEN SUMMARY

0- 5	18.
5- 10	53.
10- 15	77.
15- 20	83.
20- 25	77.
25- 30	61.
30- 35	43.
35- 40	26.
40- 45	10.
45- 50	4.
50- 55	3.
55- 60	2.
60- 65	1.
65- 70	1.
70- 75	1.
75- 80	0.
80- 85	0.
85- 90	0.

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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	18
5- 10	53
10- 15	77
15- 20	83
20- 25	77
25- 30	61
30- 35	43
35- 40	26
40- 45	10
45- 50	4
50- 55	3
55- 60	2
60- 65	1
65- 70	1
70- 75	1
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	71
0- 20	230
0- 30	369
0- 40	438
0- 50	451
0- 60	456
0- 70	458
0- 80	460
0- 90	460
0-100	460
0-110	460
0-120	460
0-130	460
0-140	460
0-150	460
0-160	460
0-170	460
0-180	460

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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	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94
2	109	104	100	97	107	103	99	96	99	97	94	96	94	92	94	92	90	89
3	104	98	93	90	102	97	92	89	94	90	88	92	89	86	89	87	85	83
4	99	92	87	83	97	91	86	83	89	85	82	87	84	81	85	82	80	79
5	95	87	82	78	93	86	81	78	85	80	77	83	79	76	81	78	76	74
6	91	83	77	73	89	82	77	73	80	76	72	79	75	72	78	74	71	70
7	87	78	73	69	85	78	72	69	76	72	68	75	71	68	74	70	68	66
8	83	74	69	65	82	74	69	65	73	68	65	72	68	65	71	67	64	63
9	80	71	65	62	79	70	65	62	69	65	62	69	64	61	68	64	61	60
10	76	68	62	59	76	67	62	59	66	62	59	66	61	58	65	61	58	57

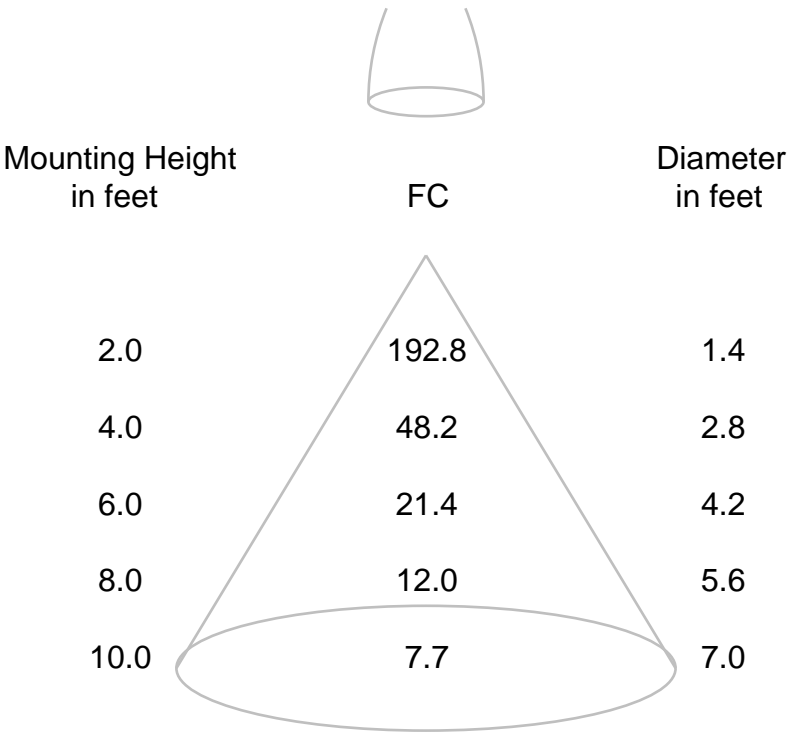
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE
BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES
ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

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CONE OF LIGHT DIAGRAM

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



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CATALOG NUMBER: RDLED2R8-40YYHC-TW (2" Round recessed downlight - wide beam - >90 High CRI)

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	7/24/16
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	7/24/16

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	<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	0.4629
Chromaticity Ordinate y	0.4148
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2626
Chromaticity Ordinate v'	0.5294
Correlated Color Temp CCT (K)	2690
Color Rendering Index (CRIa)	92
Color Rendering Index 1 (Light greyish red)	92
Color Rendering Index 2 (Dark greyish yellow)	97
Color Rendering Index 3 (Strong yellowish green)	98
Color Rendering Index 4 (Moderate yellowish green)	89
Color Rendering Index 5 (Light bluish green)	92
Color Rendering Index 6 (Light blue)	98
Color Rendering Index 7 (Light violet)	89
Color Rendering Index 8 (Light reddish purple)	78
Color Rendering Index 9 (Strong red)	54
Color Rendering Index 10 (Strong yellow)	93
Color Rendering Index 11 (Strong green)	90
Color Rendering Index 12 (Strong blue)	82
Color Rendering Index 13 (Light yellowish pink (skin))	93
Color Rendering Index 14 (Moderate olive green (leaf))	100
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	1616 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.071
Input Power (Watts)	8.24
Input Power Factor (%)	96.7
Input Current THD (%)	22.7
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

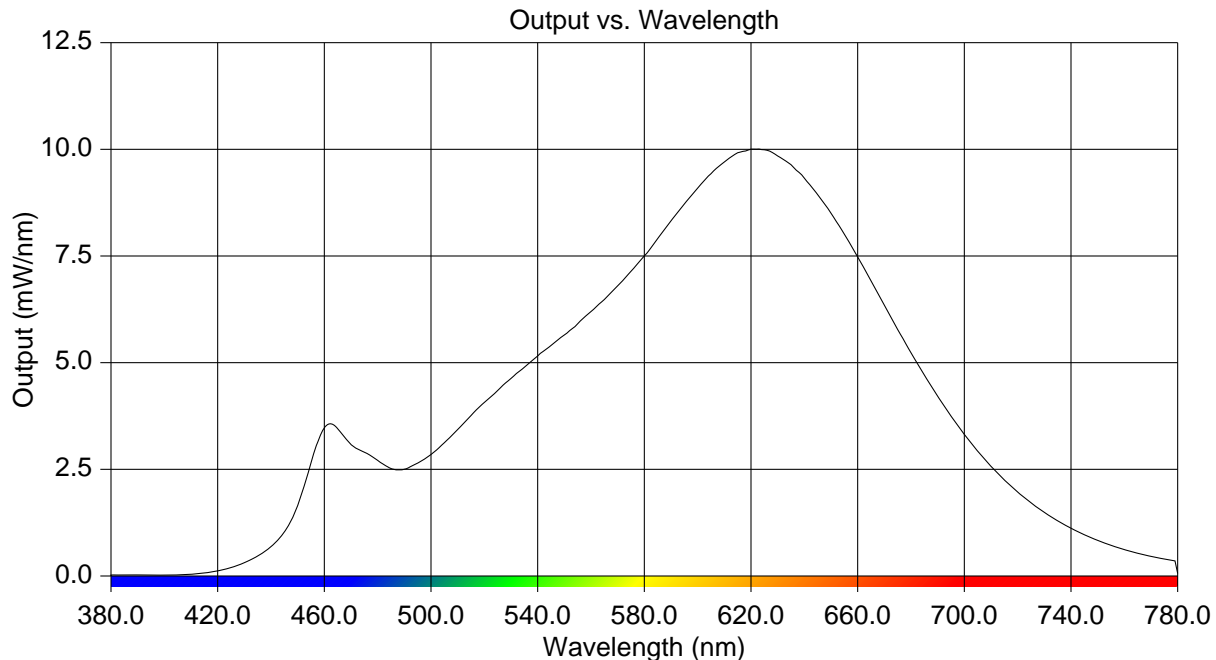
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.023	515	3.760	650	8.499
385	0.024	520	4.066	655	8.011
390	0.022	525	4.346	660	7.481
395	0.021	530	4.630	665	6.912
400	0.021	535	4.886	670	6.346
405	0.027	540	5.156	675	5.777
410	0.040	545	5.401	680	5.238
415	0.070	550	5.642	685	4.714
420	0.119	555	5.911	690	4.209
425	0.197	560	6.193	695	3.751
430	0.312	565	6.480	700	3.323
435	0.471	570	6.798	705	2.932
440	0.686	575	7.142	710	2.571
445	1.026	580	7.502	715	2.251
450	1.662	585	7.904	720	1.969
455	2.651	590	8.317	725	1.712
460	3.471	595	8.722	730	1.484
465	3.452	600	9.100	735	1.291
470	3.080	605	9.429	740	1.117
475	2.898	610	9.706	745	0.967
480	2.710	615	9.920	750	0.841
485	2.519	620	10.003	755	0.721
490	2.500	625	9.990	760	0.622
495	2.645	630	9.845	765	0.537
500	2.850	635	9.640	770	0.464
505	3.123	640	9.325	775	0.397
510	3.435	645	8.929	780	0.060



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CIE Chromaticity Diagram

