

REPORT NUMBER: RAB01064

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ISSUE DATE: 08/12/15

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RDLED2R8-40YHC-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: 8.3273 W AT 120.0 VOLTS

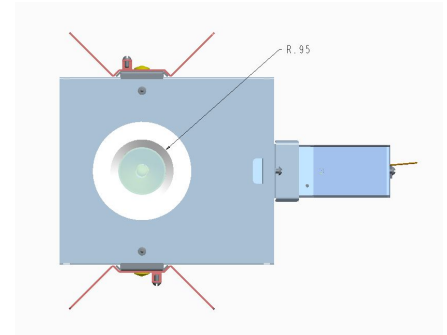
TEST PROCEDURE: IESNA LM-79-08

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	978	
5	960	89
15	699	192
25	364	166
35	134	84
45	18	18
55	6	5
65	3	3
75	2	2
85	0	0
90	0	

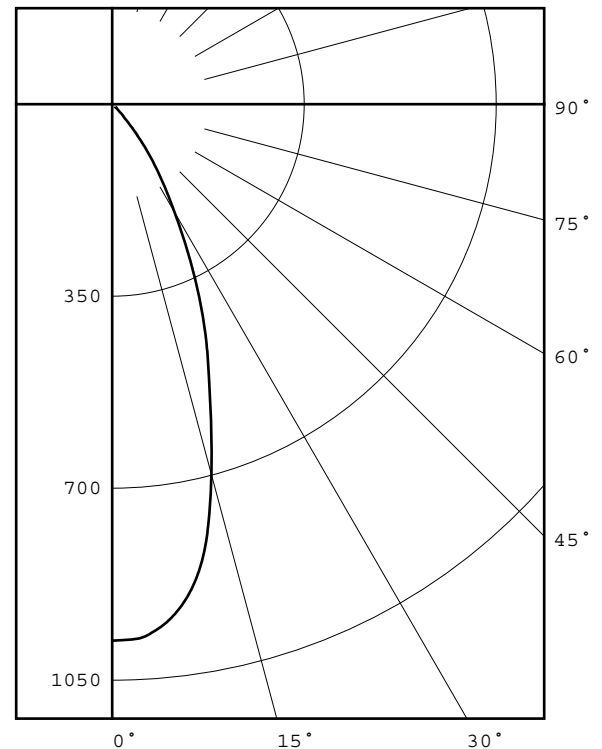
ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	447	79.9
0- 40	531	94.9
0- 60	555	99.1
0- 90	560	100.0
90-180	0	0.0
0-180	560	100.0

TOTAL INPUT WATTS = 8.3

EFFICACY = 67.5 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 0.7



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

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BEAM ANGLE (50%) : 41.6 DEGREES
FIELD ANGLE (10%): 74.6 DEGREES

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CANDELA DISTRIBUTION

	0.0
0.0	978
2.5	976
5.0	960
7.5	929
10.0	879
12.5	801
15.0	699
17.5	598
20.0	513
22.5	440
25.0	364
27.5	291
30.0	228
32.5	177
35.0	134
37.5	95
40.0	58
42.5	31
45.0	18
47.5	12
50.0	9
52.5	7
55.0	6
57.5	5
60.0	4
62.5	4
65.0	3
67.5	3
70.0	2
72.5	2
75.0	2
77.5	1
80.0	1
82.5	0
85.0	0
87.5	0
90.0	0

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ZONAL LUMEN SUMMARY

0- 5	23.
5- 10	66.
10- 15	94.
15- 20	99.
20- 25	92.
25- 30	74.
30- 35	52.
35- 40	32.
40- 45	13.
45- 50	5.
50- 55	3.
55- 60	2.
60- 65	2.
65- 70	1.
70- 75	1.
75- 80	1.
80- 85	0.
85- 90	0.

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	23
5- 10	66
10- 15	94
15- 20	99
20- 25	92
25- 30	74
30- 35	52
35- 40	32
40- 45	13
45- 50	5
50- 55	3
55- 60	2
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	89
0- 20	282
0- 30	447
0- 40	531
0- 50	549
0- 60	555
0- 70	558
0- 80	560
0- 90	560
0-100	560
0-110	560
0-120	560
0-130	560
0-140	560
0-150	560
0-160	560
0-170	560
0-180	560

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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	86	78	72	69	76	72	68	75	71	68	74	71	68	66
8	83	74	69	65	82	74	69	65	73	68	65	72	68	65	71	67	64	63
9	80	71	66	62	79	70	65	62	70	65	62	69	64	61	68	64	61	60
10	77	68	62	59	76	67	62	59	67	62	59	66	62	58	65	61	58	57

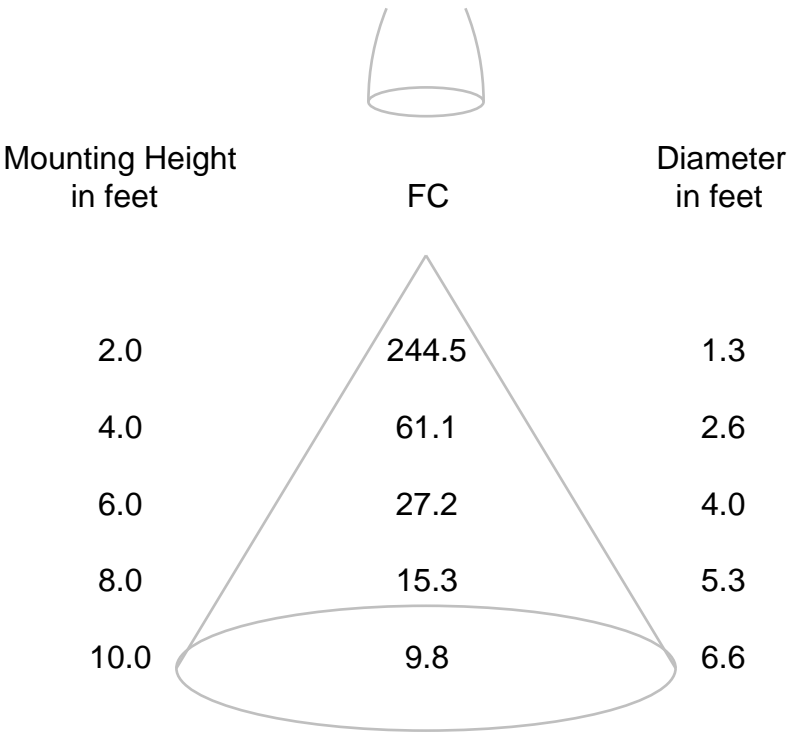
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

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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: RDLED2R8-40YHC-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:
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	N/A
	OCEAN OPTICS QE65PRO Spectroradiometer	3/9/16
	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	0.4386
Chromaticity Ordinate y	0.4049
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2513
Chromaticity Ordinate v'	0.5219
Correlated Color Temp CCT (K)	2979
Color Rendering Index (CRIa)	92
Color Rendering Index 1 (Light greyish red)	92
Color Rendering Index 2 (Dark greyish yellow)	96
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)	95
Color Rendering Index 7 (Light violet)	92
Color Rendering Index 8 (Light reddish purple)	82
Color Rendering Index 9 (Strong red)	60
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))	98
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	1940 *
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 (%)	19.9
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

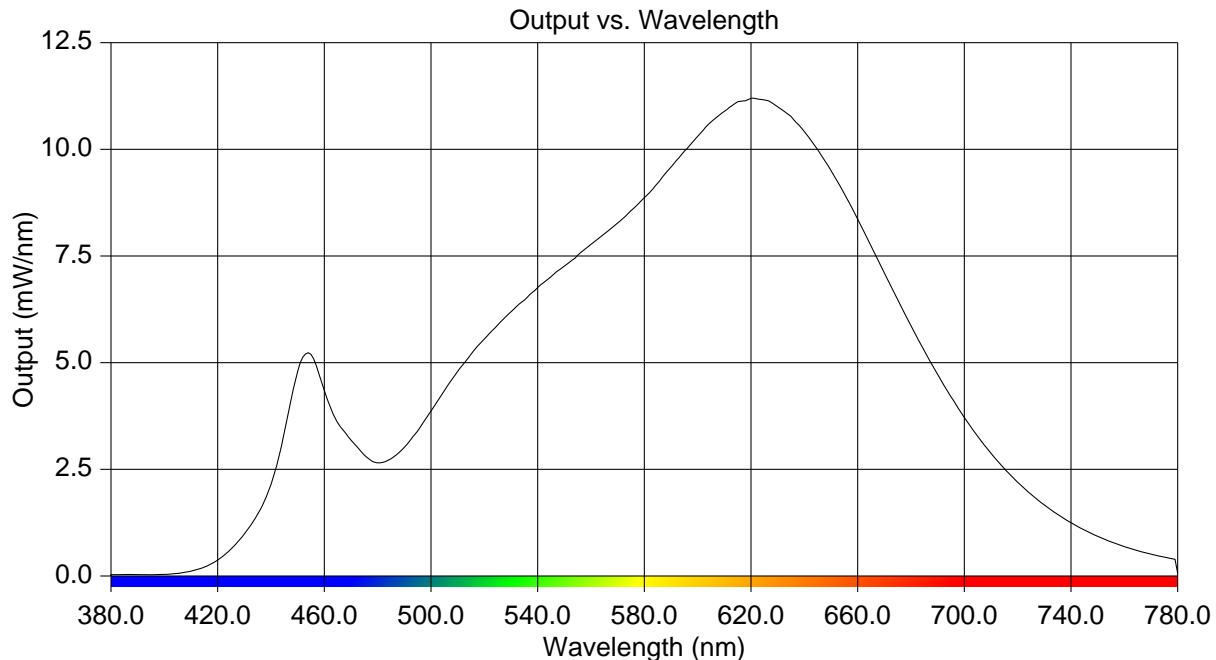
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.030	515	5.196	650	9.503
385	0.030	520	5.554	655	8.959
390	0.031	525	5.877	660	8.369
395	0.032	530	6.188	665	7.736
400	0.040	535	6.464	670	7.097
405	0.061	540	6.753	675	6.464
410	0.107	545	7.015	680	5.870
415	0.205	550	7.256	685	5.281
420	0.372	555	7.516	690	4.714
425	0.631	560	7.768	695	4.199
430	0.983	565	8.010	700	3.715
435	1.450	570	8.271	705	3.283
440	2.135	575	8.564	710	2.874
445	3.357	580	8.869	715	2.519
450	4.810	585	9.206	720	2.197
455	5.193	590	9.583	725	1.915
460	4.347	595	9.956	730	1.659
465	3.588	600	10.307	735	1.438
470	3.185	605	10.639	740	1.240
475	2.834	610	10.887	745	1.078
480	2.653	615	11.116	750	0.931
485	2.752	620	11.196	755	0.804
490	3.008	625	11.159	760	0.691
495	3.398	630	10.993	765	0.595
500	3.871	635	10.772	770	0.512
505	4.353	640	10.420	775	0.443
510	4.797	645	9.982	780	0.066



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CIE Chromaticity Diagram

