

REPORT NUMBER: RAB01754

ISSUE DATE: 03/09/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RDLED2R8-WN-TW (2" Round recessed wallwasher)

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.

(SEE PAGE 2 FOR MORE INFORMATION)

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CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	FLUX
0	708	708	708	708	708	
5	699	694	687	678	675	63
15	541	543	530	493	469	144
25	326	334	321	269	231	139
35	167	166	158	125	103	93
45	87	79	78	66	63	59
55	51	47	51	46	53	44
65	31	33	42	31	39	34
75	12	14	23	13	18	17
85	1	2	2	2	2	2
90	0	0	0	0	0	

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	346	58.1
0- 40	439	73.8
0- 60	542	91.0
0- 90	596	100.0
90-180	0	0.0
0-180	596	100.0

TOTAL INPUT WATTS = 8.1

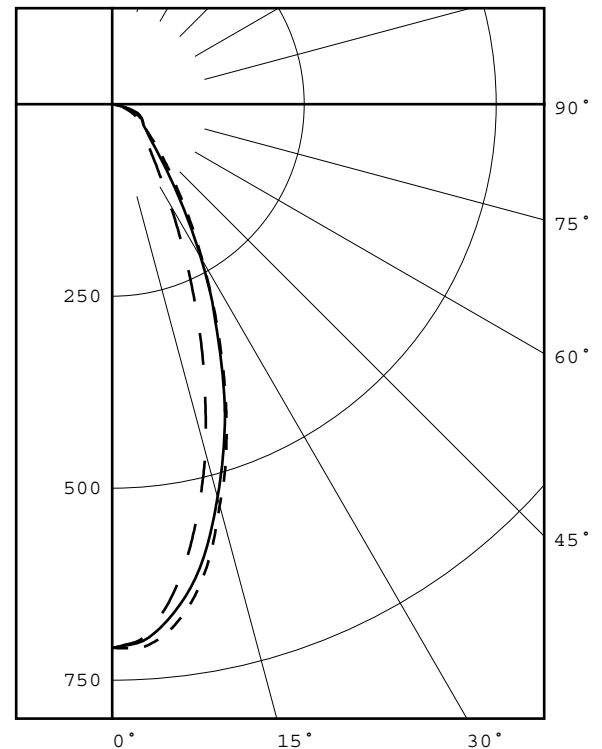
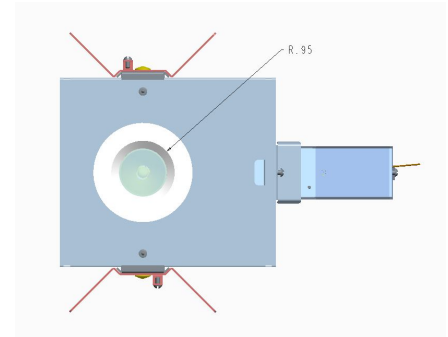
EFFICACY = 73.6 Lm/W

CIE TYPE - DIRECT

PLANE	: 0-DEG	90-DEG	180-DEG
SPACING CRITERIA	: 0.7	0.7	0.6
PLANE	: 0-DEG	90-DEG	
LUMINOUS LENGTH	: 1.780	1.780	

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 90-DEG	AVERAGE 180-DEG
45	60169.	53944.	43570.
55	43482.	43482.	45188.
65	35871.	48600.	45129.
75	22674.	43458.	34010.
85	5611.	11222.	11222.



LEGEND:
0-deg: - - - - -
90-deg: _____
180-deg: — — — — —

Checked X.CAO
Approved D.WANG-MUNSON

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ADDITIONAL INFORMATION

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS: 8.1298 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

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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PLANE : 0-DEG 90-DEG
BEAM ANGLE (50%) : 43.1 X 46.8 DEGREES
FIELD ANGLE (10%): 90.1 X 93.5 DEGREES

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ZONAL LUMEN SUMMARY

0- 5	17.
5- 10	47.
10- 15	68.
15- 20	76.
20- 25	74.
25- 30	65.
30- 35	52.
35- 40	41.
40- 45	32.
45- 50	27.
50- 55	23.
55- 60	21.
60- 65	19.
65- 70	16.
70- 75	11.
75- 80	5.
80- 85	2.
85- 90	1.

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	17
5- 10	47
10- 15	68
15- 20	76
20- 25	74
25- 30	65
30- 35	52
35- 40	41
40- 45	32
45- 50	27
50- 55	23
55- 60	21
60- 65	19
65- 70	16
70- 75	11
75- 80	5
80- 85	2
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	63
0- 20	207
0- 30	346
0- 40	439
0- 50	498
0- 60	542
0- 70	577
0- 80	594
0- 90	596
0-100	596
0-110	596
0-120	596
0-130	596
0-140	596
0-150	596
0-160	596
0-170	596
0-180	596

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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	112	108	105	103	109	106	103	101	102	100	98	98	97	95	95	93	92	90
2	105	99	94	90	102	97	92	89	94	90	87	91	87	85	88	85	83	81
3	98	90	84	80	96	89	83	79	86	81	78	84	80	76	81	78	75	73
4	92	83	77	72	90	82	76	71	80	74	70	78	73	69	76	72	69	67
5	87	77	70	65	85	76	70	65	74	69	64	72	68	64	71	67	63	61
6	82	72	65	60	80	71	64	60	69	64	59	68	63	59	66	62	58	57
7	78	67	60	55	76	66	60	55	65	59	55	64	59	55	63	58	54	53
8	74	63	56	52	72	62	56	51	61	55	51	60	55	51	59	54	51	49
9	70	59	53	48	69	59	52	48	58	52	48	57	52	48	56	51	48	46
10	67	56	50	45	66	56	49	45	55	49	45	54	49	45	53	48	45	43

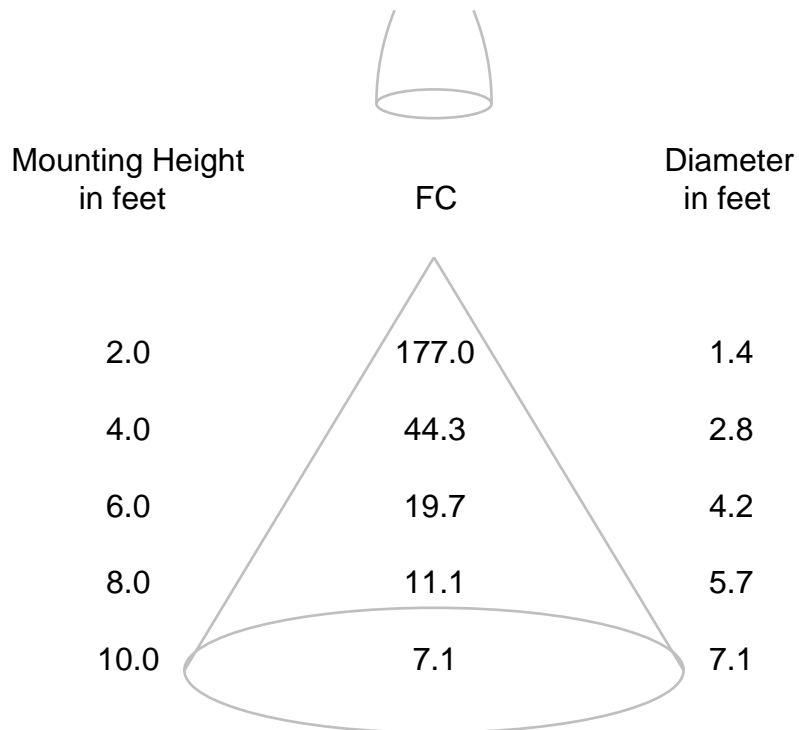
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

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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: 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 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	2/29/17

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 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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RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3859
Chromaticity Ordinate y	0.3835
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2260
Chromaticity Ordinate v'	0.5053
Correlated Color Temp CCT (K)	3904
Color Rendering Index (CRIa)	80
Color Rendering Index 1 (Light greyish red)	78
Color Rendering Index 2 (Dark greyish yellow)	85
Color Rendering Index 3 (Strong yellowish green)	91
Color Rendering Index 4 (Moderate yellowish green)	80
Color Rendering Index 5 (Light bluish green)	78
Color Rendering Index 6 (Light blue)	80
Color Rendering Index 7 (Light violet)	86
Color Rendering Index 8 (Light reddish purple)	64
Color Rendering Index 9 (Strong red)	5
Color Rendering Index 10 (Strong yellow)	65
Color Rendering Index 11 (Strong green)	77
Color Rendering Index 12 (Strong blue)	56
Color Rendering Index 13 (Light yellowish pink (skin))	80
Color Rendering Index 14 (Moderate olive green (leaf))	94
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	1800 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.070
Input Power (Watts)	8.13
Input Power Factor (%)	97.1
Input Current THD (%)	21.5
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

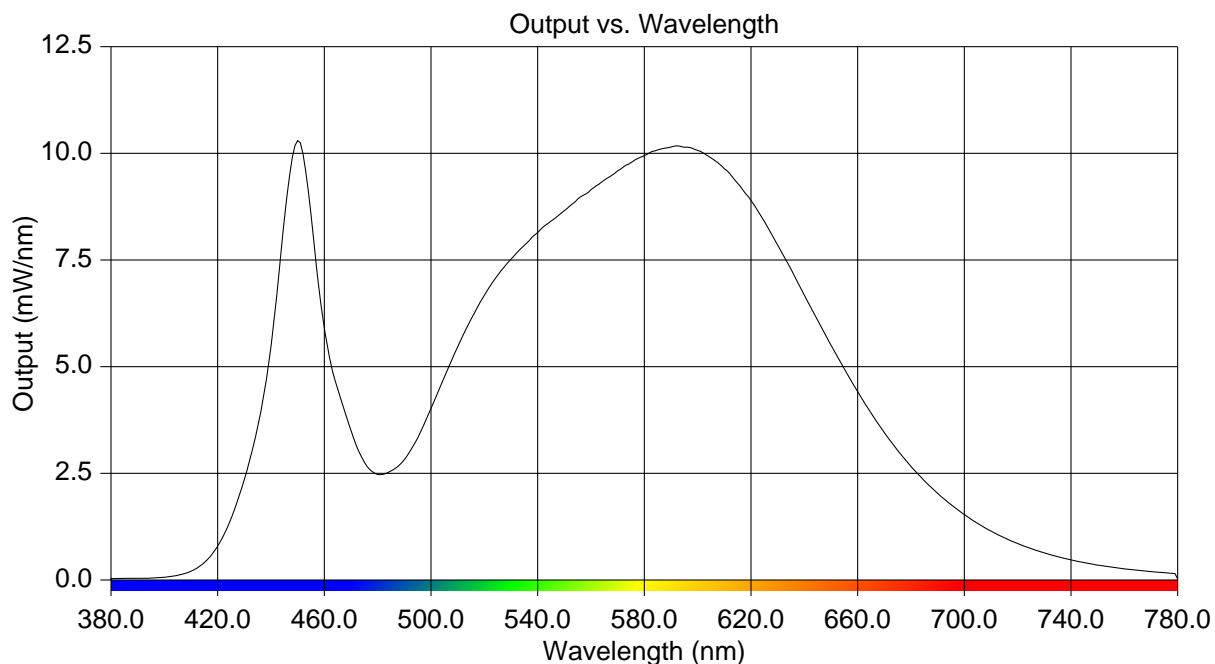
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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.

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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.032	515	6.117	650	5.507
385	0.035	520	6.664	655	4.949
390	0.039	525	7.150	660	4.422
395	0.045	530	7.518	665	3.911
400	0.066	535	7.844	670	3.453
405	0.109	540	8.142	675	3.034
410	0.204	545	8.411	680	2.666
415	0.408	550	8.660	685	2.327
420	0.791	555	8.928	690	2.031
425	1.439	560	9.148	695	1.768
430	2.352	565	9.376	700	1.532
435	3.571	570	9.591	705	1.327
440	5.493	575	9.782	710	1.148
445	8.450	580	9.945	715	0.987
450	10.298	585	10.077	720	0.852
455	8.570	590	10.144	725	0.735
460	5.908	595	10.142	730	0.634
465	4.481	600	10.068	735	0.546
470	3.504	605	9.897	740	0.472
475	2.762	610	9.639	745	0.406
480	2.472	615	9.298	750	0.351
485	2.554	620	8.900	755	0.302
490	2.821	625	8.413	760	0.262
495	3.326	630	7.847	765	0.227
500	4.015	635	7.287	770	0.195
505	4.753	640	6.674	775	0.170
510	5.465	645	6.089	780	0.025



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CIE Chromaticity Diagram

