

REPORT NUMBER: RAB01763

ISSUE DATE: 03/11/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RDLED2R8-30N-TW (2" Round recessed downlight - medium beam)

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.

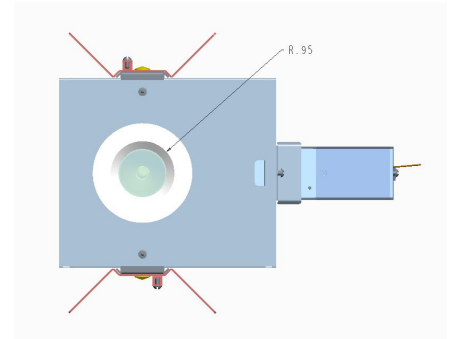
(SEE PAGE 2 FOR MORE INFORMATION)

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0	2009	2009	2009	2009	2009
5	1941	1943	1940	1945	1936
15	1087	1061	1075	1057	1062
25	323	318	328	322	327
35	162	158	163	157	161
45	22	22	23	22	23
55	8	8	8	8	8
65	5	4	5	4	4
75	2	2	2	2	2
85	0	0	0	0	0
90	0	0	0	0	0

FLUX

176
291
159
97
22
7
5
2
0



ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	626	82.4
0- 40	723	95.2
0- 60	752	99.1
0- 90	759	100.0
90-180	0	0.0
0-180	759	100.0

TOTAL INPUT WATTS = 8.1

EFFICACY = 93.7 lm/W

CIE TYPE - DIRECT

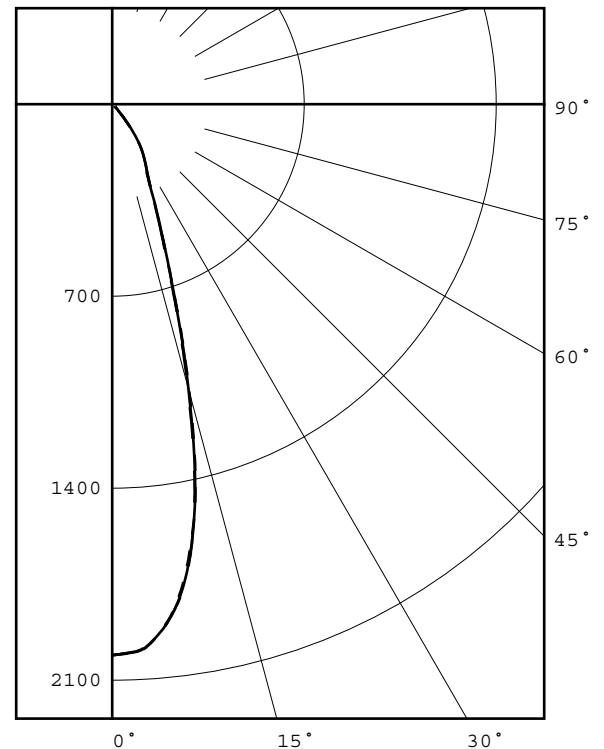
PLANE : 0-DEG 90-DEG

SPACING CRITERIA : 0.5 0.5

LUMINOUS DIAMETER: 0.950

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	68010.	71102.	71102.
55	30489.	30489.	30489.
65	25862.	25862.	20689.
75	16892.	16892.	16892.
85	0.	0.	0.



LEGEND:

0-deg: - - - - -
 45-deg: = = = = =
 90-deg: _ _ _ _ _

Checked X.CAO
 Approved D.WANG-MUNSON

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ADDITIONAL INFORMATION

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: 8.1419 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%) : 31.4 X 31.0 DEGREES
FIELD ANGLE (10%): 65.4 X 65.4 DEGREES

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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	2009	2009	2009	2009	2009
2.5	2000	2001	1999	2001	1997
5.0	1941	1943	1940	1945	1936
7.5	1825	1829	1832	1834	1834
10.0	1641	1647	1651	1653	1654
12.5	1404	1381	1397	1382	1388
15.0	1087	1061	1075	1057	1062
17.5	790	772	784	767	770
20.0	569	557	567	557	555
22.5	420	411	427	414	424
25.0	323	318	328	322	327
27.5	269	267	273	269	272
30.0	237	235	239	236	238
32.5	204	202	205	201	204
35.0	162	158	163	157	161
37.5	115	111	116	111	114
40.0	70	67	72	69	72
42.5	37	36	39	37	39
45.0	22	22	23	22	23
47.5	16	16	16	16	16
50.0	12	12	12	12	12
52.5	10	9	10	9	10
55.0	8	8	8	8	8
57.5	7	7	7	7	7
60.0	6	6	6	6	6
62.5	5	5	5	5	5
65.0	5	4	5	4	4
67.5	4	4	4	4	4
70.0	3	4	4	4	4
72.5	3	3	3	3	3
75.0	2	2	2	2	2
77.5	2	2	2	2	2
80.0	1	1	1	1	1
82.5	0	0	0	0	0
85.0	0	0	0	0	0
87.5	0	0	0	0	0
90.0	0	0	0	0	0

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ZONAL LUMEN SUMMARY

0- 5	47.
5- 10	129.
10- 15	161.
15- 20	130.
20- 25	90.
25- 30	69.
30- 35	59.
35- 40	38.
40- 45	15.
45- 50	7.
50- 55	4.
55- 60	3.
60- 65	2.
65- 70	2.
70- 75	2.
75- 80	1.
80- 85	0.
85- 90	0.

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	47
5- 10	129
10- 15	161
15- 20	130
20- 25	90
25- 30	69
30- 35	59
35- 40	38
40- 45	15
45- 50	7
50- 55	4
55- 60	3
60- 65	2
65- 70	2
70- 75	2
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	176
0- 20	467
0- 30	626
0- 40	723
0- 50	745
0- 60	752
0- 70	757
0- 80	759
0- 90	759
0-100	759
0-110	759
0-120	759
0-130	759
0-140	759
0-150	759
0-160	759
0-170	759
0-180	759

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

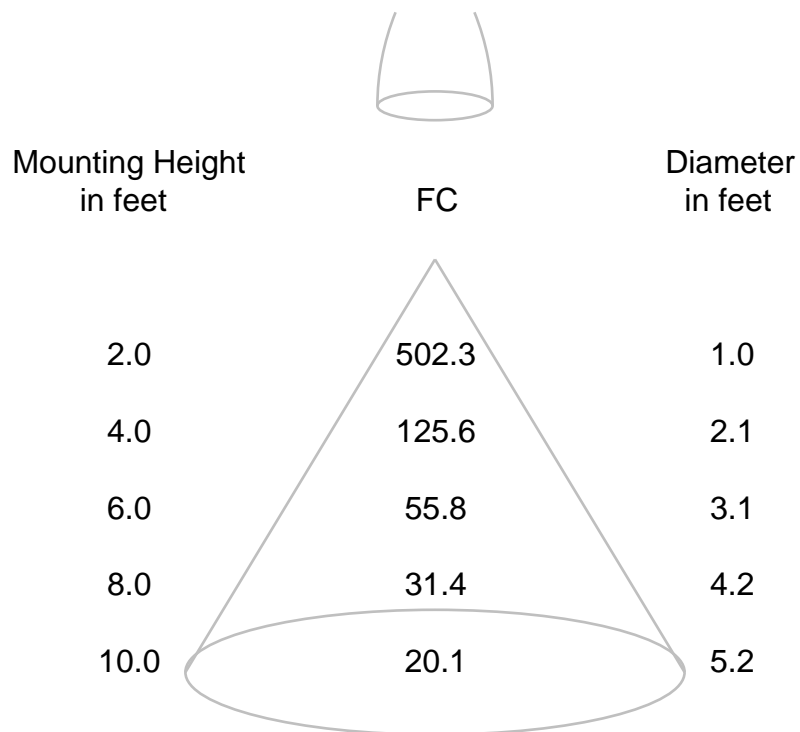
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

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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	3/10/17

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	0.3846
Chromaticity Ordinate y	0.3820
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2257
Chromaticity Ordinate v'	0.5045
Correlated Color Temp CCT (K)	3929
Color Rendering Index (CRIa)	81
Color Rendering Index 1 (Light greyish red)	79
Color Rendering Index 2 (Dark greyish yellow)	86
Color Rendering Index 3 (Strong yellowish green)	90
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)	65
Color Rendering Index 9 (Strong red)	7
Color Rendering Index 10 (Strong yellow)	65
Color Rendering Index 11 (Strong green)	78
Color Rendering Index 12 (Strong blue)	57
Color Rendering Index 13 (Light yellowish pink (skin))	80
Color Rendering Index 14 (Moderate olive green (leaf))	94
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	2300 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.070
Input Power (Watts)	8.14
Input Power Factor (%)	97.1
Input Current THD (%)	21.5
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

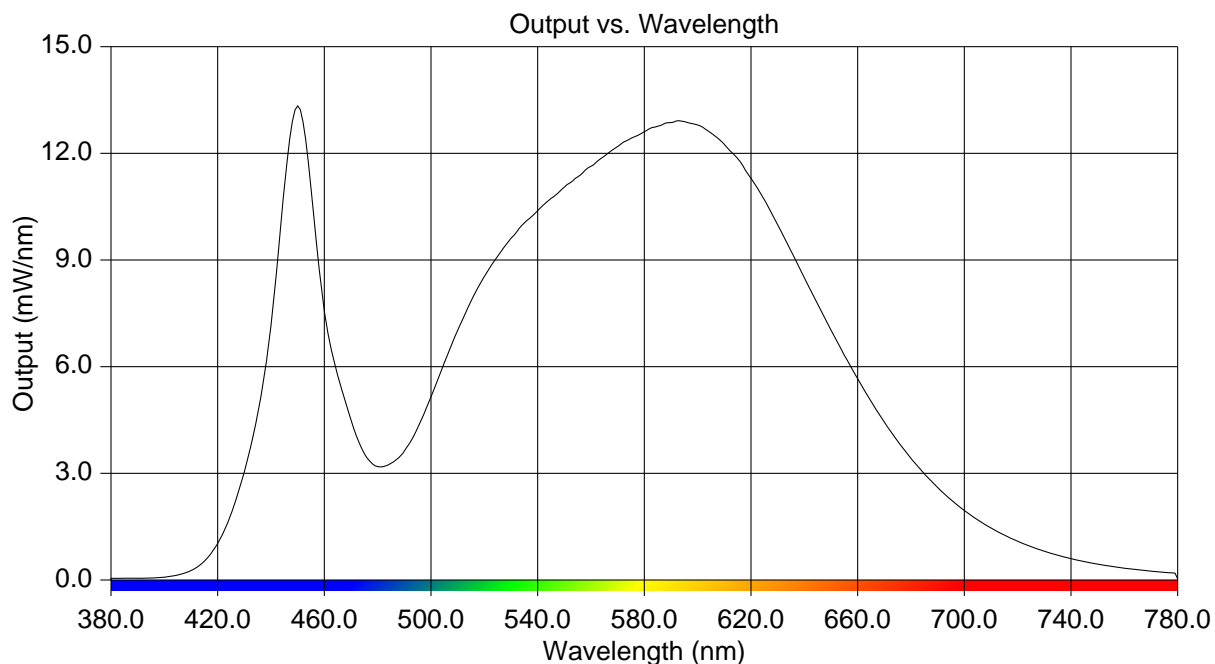
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	0.042	515	7.838	650	7.025
385	0.045	520	8.536	655	6.318
390	0.047	525	9.101	660	5.666
395	0.059	530	9.611	665	5.029
400	0.081	535	10.043	670	4.442
405	0.135	540	10.381	675	3.902
410	0.266	545	10.732	680	3.421
415	0.528	550	11.053	685	2.988
420	1.025	555	11.337	690	2.603
425	1.848	560	11.636	695	2.258
430	3.040	565	11.923	700	1.954
435	4.659	570	12.191	705	1.694
440	7.189	575	12.422	710	1.461
445	11.023	580	12.606	715	1.260
450	13.333	585	12.763	720	1.087
455	11.019	590	12.864	725	0.938
460	7.584	595	12.893	730	0.808
465	5.754	600	12.804	735	0.695
470	4.498	605	12.576	740	0.599
475	3.555	610	12.252	745	0.517
480	3.190	615	11.853	750	0.447
485	3.280	620	11.286	755	0.386
490	3.628	625	10.698	760	0.333
495	4.280	630	9.990	765	0.287
500	5.162	635	9.255	770	0.249
505	6.111	640	8.497	775	0.214
510	7.029	645	7.771	780	0.033



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CIE Chromaticity Diagram

