

REPORT NUMBER: RAB01068

ISSUE DATE: 08/12/15

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RDLED2S8-40YHC-TW(2" Square 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: 8.3246 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

LED

(SEE PAGE 2 FOR MORE INFORMATION)

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0	907	907	907	907	907
5	870	868	873	871	872
15	576	593	609	599	584
25	327	357	336	358	324
35	83	123	177	123	86
45	15	18	40	18	15
55	11	7	12	7	11
65	4	3	3	3	4
75	1	1	1	1	1
85	0	0	0	0	0
90	0	0	0	0	0

FLUX

79
166
157
81
20
8
3
1
0

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	402	77.8
0- 40	483	93.6
0- 60	512	99.1
0- 90	517	100.0
90-180	0	0.0
0-180	517	100.0

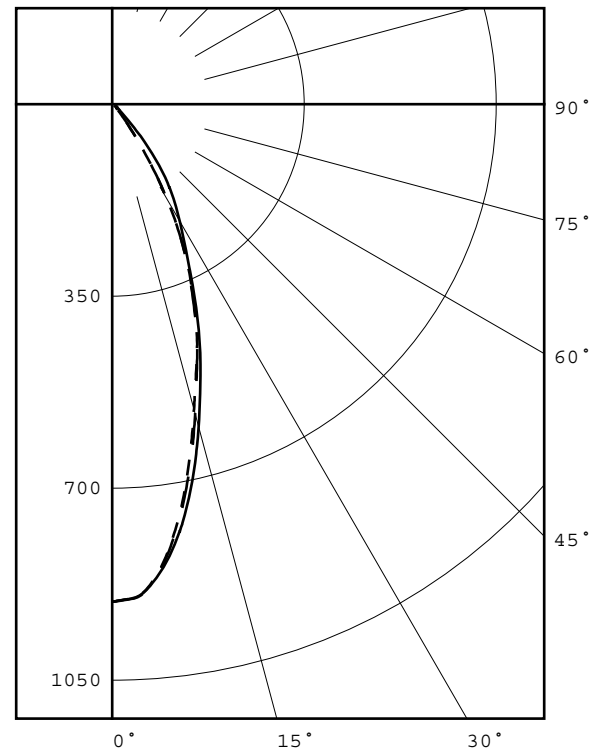
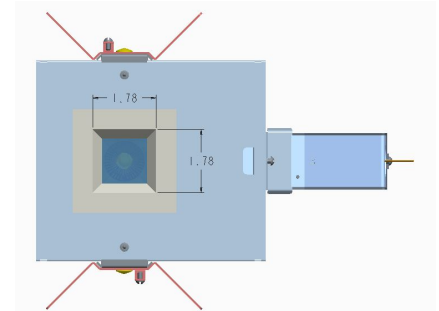
TOTAL INPUT WATTS = 8.3

EFFICACY = 62.3 Lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG

SPACING CRITERIA : 0.6 0.6



LEGEND:

0-deg: - - - - -
45-deg: - - - - -
90-deg: - - - - -

Checked

X.CAO

Approved

D.WANG-MUNSON

REPORT NUMBER: RAB01068

PAGE: 2 OF 8

ISSUE DATE: 08/12/15

DATE SAMPLE TESTED: 08/12/15

PREPARED FOR: RAB LIGHTING INC.

ADDITIONAL INFORMATION

Indoor, Architectural, Commercial, Downlight, Corridor, Hallway,
Hospitality, Hotel, Library, Medical, Office, Residential, Retail,
Stairway, Accent, Ambient, Decorative, Retrofit

Recessed

90

3000

REPORT NUMBER: RAB01068
ISSUE DATE: 08/12/15
PREPARED FOR: RAB LIGHTING INC.

PAGE: 3 OF 8
DATE SAMPLE TESTED: 08/12/15

PLANE : 0-DEG 90-DEG
BEAM ANGLE (50%) : 39.9 X 39.9 DEGREES
FIELD ANGLE (10%): 69.3 X 69.5 DEGREES

REPORT NUMBER: RAB01068
ISSUE DATE: 08/12/15
PREPARED FOR: RAB LIGHTING INC.

PAGE: 4 OF 8
DATE SAMPLE TESTED: 08/12/15

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	907	907	907	907	907
2.5	901	900	901	901	902
5.0	870	868	873	871	872
7.5	811	813	824	817	814
10.0	737	744	761	750	742
12.5	655	668	687	674	663
15.0	576	593	609	599	584
17.5	509	525	534	530	513
20.0	452	469	467	472	452
22.5	389	413	399	416	385
25.0	327	357	336	358	324
27.5	265	301	286	300	264
30.0	199	243	246	241	199
32.5	136	182	212	180	136
35.0	83	123	177	123	86
37.5	47	75	140	76	50
40.0	27	43	100	44	29
42.5	19	26	65	27	19
45.0	15	18	40	18	15
47.5	12	14	26	14	13
50.0	12	11	19	11	12
52.5	11	9	15	9	12
55.0	11	7	12	7	11
57.5	9	6	9	5	9
60.0	7	5	6	5	7
62.5	5	4	4	4	5
65.0	4	3	3	3	4
67.5	3	3	2	2	3
70.0	2	2	2	2	2
72.5	2	2	1	2	2
75.0	1	1	1	1	1
77.5	1	1	1	1	1
80.0	0	0	0	0	0
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

REPORT NUMBER: RAB01068
ISSUE DATE: 08/12/15
PREPARED FOR: RAB LIGHTING INC.

PAGE: 5 OF 8
DATE SAMPLE TESTED: 08/12/15

ZONAL LUMEN SUMMARY

0- 5	21.
5- 10	58.
10- 15	79.
15- 20	87.
20- 25	84.
25- 30	73.
30- 35	52.
35- 40	29.
40- 45	13.
45- 50	7.
50- 55	5.
55- 60	3.
60- 65	2.
65- 70	1.
70- 75	1.
75- 80	0.
80- 85	0.
85- 90	0.

REPORT NUMBER: RAB01068
 ISSUE DATE: 08/12/15
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 8
 DATE SAMPLE TESTED: 08/12/15

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	21
5- 10	58
10- 15	79
15- 20	87
20- 25	84
25- 30	73
30- 35	52
35- 40	29
40- 45	13
45- 50	7
50- 55	5
55- 60	3
60- 65	2
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	79
0- 20	245
0- 30	402
0- 40	483
0- 50	504
0- 60	512
0- 70	515
0- 80	517
0- 90	517
0-100	517
0-110	517
0-120	517
0-130	517
0-140	517
0-150	517
0-160	517
0-170	517
0-180	517

REPORT NUMBER: RAB01068
ISSUE DATE: 08/12/15

PAGE: 7 OF 8
DATE SAMPLE TESTED: 08/12/15

PREPARED FOR: RAB LIGHTING INC.

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	106	102	99	96	99	96	94	96	94	92	93	91	90	88
3	103	97	93	89	102	96	92	88	93	90	87	91	88	86	89	86	84	83
4	99	92	86	82	97	90	86	82	88	84	81	86	83	80	85	82	79	78
5	94	86	81	77	93	85	80	76	84	79	76	82	78	75	81	77	75	73
6	90	82	76	72	89	81	76	72	79	75	71	78	74	71	77	73	70	69
7	86	77	72	68	85	77	71	68	75	71	67	74	70	67	73	69	66	65
8	82	73	68	64	81	73	67	64	72	67	64	71	66	63	70	66	63	62
9	79	70	64	61	78	69	64	60	68	64	60	67	63	60	67	63	60	59
10	75	66	61	57	75	66	61	57	65	60	57	65	60	57	64	60	57	56

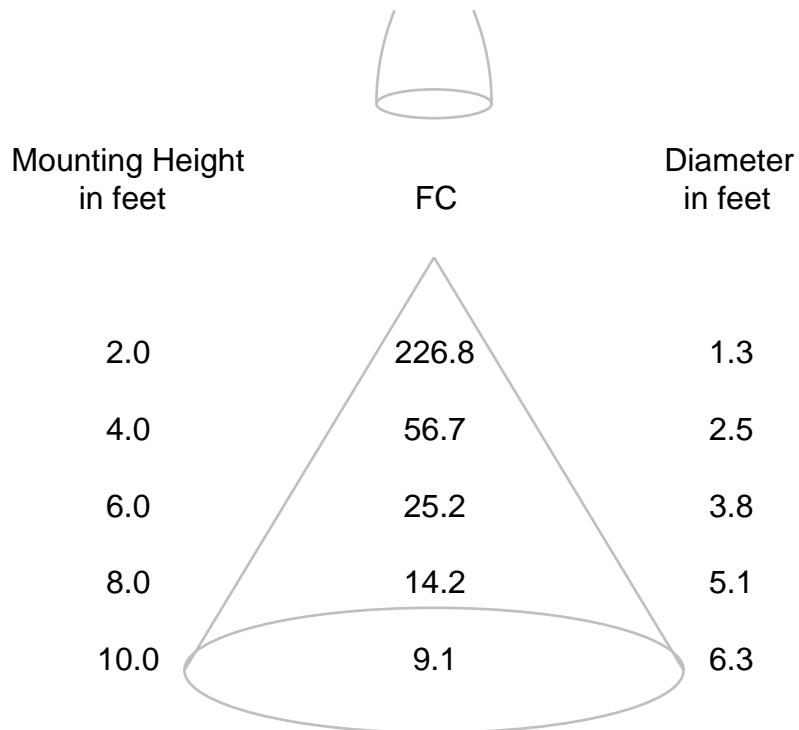
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

REPORT NUMBER: RAB01068
ISSUE DATE: 08/12/15
PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 8
DATE SAMPLE TESTED: 08/12/15

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.

REPORT NUMBER: RAB01069
DATE: 8/12/2015
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: RDLED2S8-40YHC-TW(2" Square 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 X.CAO

Approved D.WANG-MUNSON
Lighting Engineer

REPORT NUMBER: RAB01069
 DATE: 8/12/2015
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: RDLED2S8-40YHC-TW(2" Square recessed downlight - wide beam - >90 High CRI)

Page 2 of 4

RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4365
Chromaticity Ordinate y	0.4032
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2507
Chromaticity Ordinate v'	0.5210
Correlated Color Temp CCT (K)	3000
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)	92
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)	82
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)	1792 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.071
Input Power (Watts)	8.32
Input Power Factor (%)	97.7
Input Current THD (%)	19.1
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

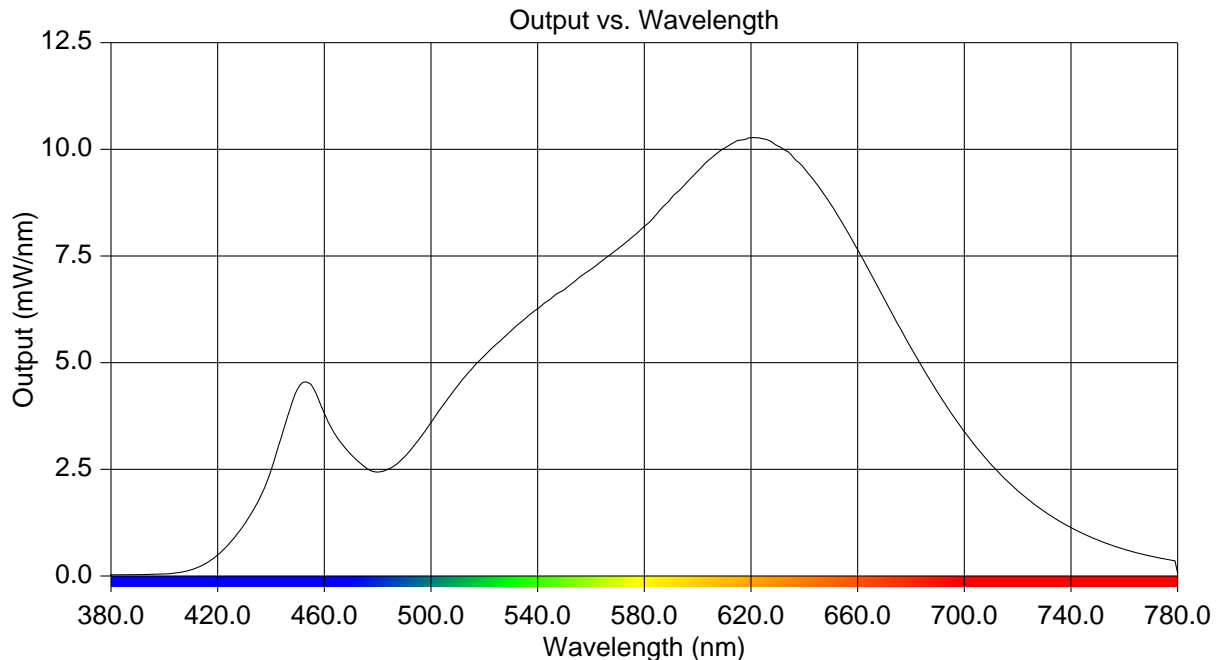
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even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

REPORT NUMBER: RAB01069
 DATE: 8/12/2015
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: RDLED2S8-40YHC-TW(2" Square recessed downlight - wide beam - >90 High CRI)

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.027	515	4.832	650	8.713
385	0.031	520	5.154	655	8.202
390	0.030	525	5.460	660	7.647
395	0.035	530	5.745	665	7.071
400	0.046	535	6.016	670	6.489
405	0.076	540	6.261	675	5.905
410	0.143	545	6.502	680	5.350
415	0.272	550	6.711	685	4.811
420	0.490	555	6.967	690	4.302
425	0.804	560	7.187	695	3.826
430	1.209	565	7.429	700	3.385
435	1.730	570	7.664	705	2.983
440	2.467	575	7.919	710	2.618
445	3.490	580	8.196	715	2.294
450	4.387	585	8.509	720	1.997
455	4.492	590	8.847	725	1.738
460	3.799	595	9.160	730	1.511
465	3.227	600	9.489	735	1.308
470	2.843	605	9.791	740	1.131
475	2.564	610	10.032	745	0.979
480	2.436	615	10.209	750	0.844
485	2.536	620	10.273	755	0.726
490	2.789	625	10.242	760	0.627
495	3.156	630	10.081	765	0.539
500	3.595	635	9.878	770	0.465
505	4.039	640	9.551	775	0.401
510	4.463	645	9.164	780	0.060



REPORT NUMBER: RAB01069
DATE: 8/12/2015
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: RDLED2S8-40YHC-TW(2" Square recessed downlight - wide beam - >90 High CRI)

Page 4 of 4

CIE Chromaticity Diagram

