

REPORT NUMBER: RAB01752

ISSUE DATE: 03/08/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: RDLED2S8-WN-TW (2" square 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)

PAGE: 1 OF 8

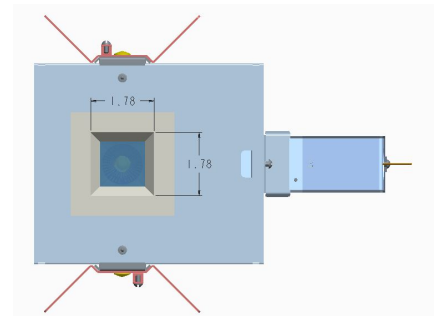
DATE SAMPLE TESTED: 03/08/16

CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0
0	582	582	582	582	582
5	579	575	568	562	560
15	467	466	447	431	418
25	298	295	273	246	214
35	150	155	131	115	92
45	81	73	65	61	60
55	48	44	43	42	47
65	29	31	36	28	34
75	9	13	20	11	13
85	1	1	1	1	1
90	0	0	0	0	0

FLUX

53
123
122
83
53
40
31
15
2



ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	298	57.0
0- 40	380	72.9
0- 60	474	90.8
0- 90	522	100.0
90-180	0	0.0
0-180	522	100.0

TOTAL INPUT WATTS = 8.2

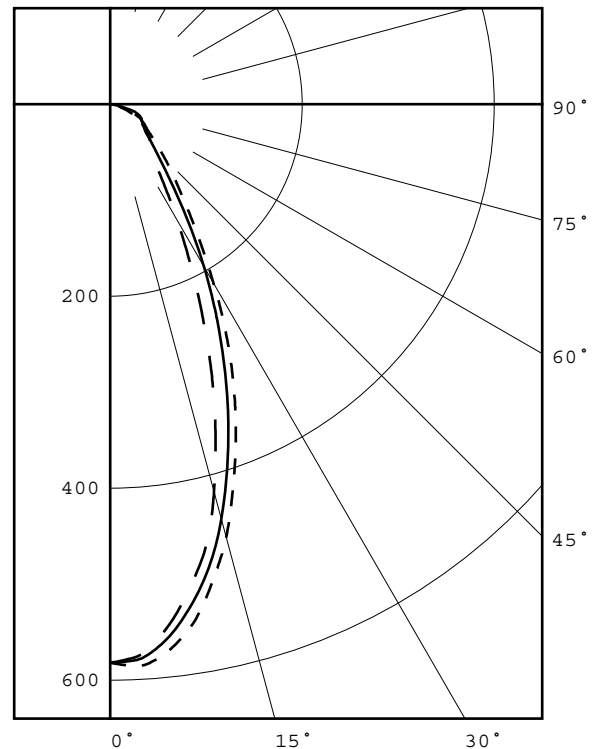
EFFICACY = 63.7 Lm/W

CIE TYPE - DIRECT

PLANE	: 0-DEG	90-DEG	180-DEG
SPACING CRITERIA	: 0.8	0.7	0.7
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	56019.	44954.	41496.
55	40925.	36662.	40072.
65	33557.	41657.	39343.
75	17005.	37789.	24563.
85	5611.	5611.	5611.



LEGEND:

0-deg: - - - - -
90-deg: - - - - -
180-deg: - - - - -

Checked

X.CAO

Approved

D.WANG-MUNSON

REPORT NUMBER: RAB01752
ISSUE DATE: 03/08/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 8
DATE SAMPLE TESTED: 03/08/16

ADDITIONAL INFORMATION

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS: 8.2432 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.

REPORT NUMBER: RAB01752
ISSUE DATE: 03/08/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 3 OF 8
DATE SAMPLE TESTED: 03/08/16

PLANE : 0-DEG 90-DEG
BEAM ANGLE (50%) : 46.3 X 47.7 DEGREES
FIELD ANGLE (10%): 96.7 X 94.6 DEGREES

REPORT NUMBER: RAB01752
ISSUE DATE: 03/08/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 5 OF 8
DATE SAMPLE TESTED: 03/08/16

ZONAL LUMEN SUMMARY

0- 5	14.
5- 10	39.
10- 15	57.
15- 20	66.
20- 25	65.
25- 30	57.
30- 35	47.
35- 40	36.
40- 45	29.
45- 50	24.
50- 55	21.
55- 60	19.
60- 65	17.
65- 70	14.
70- 75	10.
75- 80	5.
80- 85	1.
85- 90	0.

REPORT NUMBER: RAB01752
ISSUE DATE: 03/08/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 8
DATE SAMPLE TESTED: 03/08/16

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	14
5- 10	39
10- 15	57
15- 20	66
20- 25	65
25- 30	57
30- 35	47
35- 40	36
40- 45	29
45- 50	24
50- 55	21
55- 60	19
60- 65	17
65- 70	14
70- 75	10
75- 80	5
80- 85	1
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	53
0- 20	175
0- 30	298
0- 40	380
0- 50	434
0- 60	474
0- 70	505
0- 80	520
0- 90	522
0-100	522
0-110	522
0-120	522
0-130	522
0-140	522
0-150	522
0-160	522
0-170	522
0-180	522

REPORT NUMBER: RAB01752
ISSUE DATE: 03/08/16

PAGE: 7 OF 8
DATE SAMPLE TESTED: 03/08/16

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	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90
2	105	99	93	89	102	97	92	88	93	90	86	90	87	84	87	85	83	81
3	98	90	84	79	96	89	83	78	86	81	77	83	79	76	81	78	75	73
4	92	83	76	71	90	82	75	71	79	74	70	77	73	69	75	71	68	66
5	87	77	70	65	85	76	69	64	74	68	64	72	67	63	70	66	62	61
6	82	71	64	59	80	70	64	59	69	63	59	67	62	58	66	61	58	56
7	77	66	60	55	76	66	59	55	64	58	54	63	58	54	62	57	54	52
8	73	62	55	51	72	62	55	51	61	55	50	59	54	50	58	54	50	48
9	69	59	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47	45
10	66	55	49	45	65	55	49	44	54	48	44	53	48	44	52	48	44	43

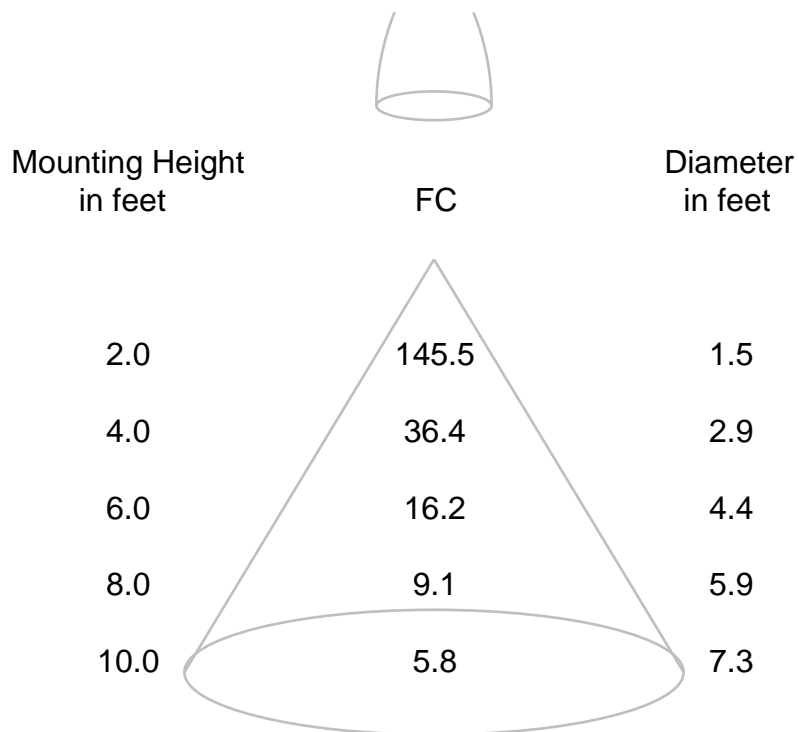
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

REPORT NUMBER: RAB01752
ISSUE DATE: 03/08/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 8
DATE SAMPLE TESTED: 03/08/16

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: RAB01753
DATE: 3/8/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: RDLED2S8-WN-TW (2" square recessed wallwasher)

Page 1 of 4

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

REPORT NUMBER: RAB01753
 DATE: 3/8/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: RDLED2S8-WN-TW (2" square recessed wallwasher)

Page 2 of 4

RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3915
Chromaticity Ordinate y	0.3874
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2281
Chromaticity Ordinate v'	0.5078
Correlated Color Temp CCT (K)	3794
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)	79
Color Rendering Index 7 (Light violet)	86
Color Rendering Index 8 (Light reddish purple)	63
Color Rendering Index 9 (Strong red)	4
Color Rendering Index 10 (Strong yellow)	64
Color Rendering Index 11 (Strong green)	77
Color Rendering Index 12 (Strong blue)	57
Color Rendering Index 13 (Light yellowish pink (skin))	79
Color Rendering Index 14 (Moderate olive green (leaf))	94
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	1572 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.070
Input Power (Watts)	8.24
Input Power Factor (%)	97.6
Input Current THD (%)	19.1
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

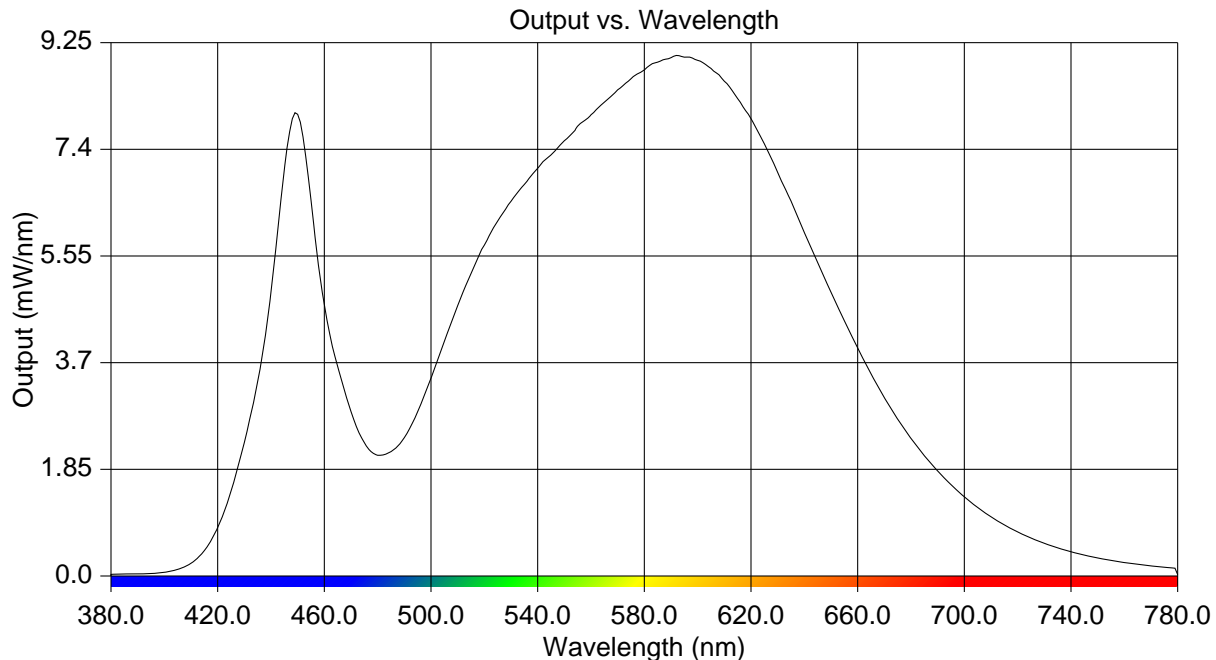
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB01753
 DATE: 3/8/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: RDLED2S8-WN-TW (2" square recessed wallwasher)

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.028	515	5.250	650	4.925
385	0.032	520	5.738	655	4.428
390	0.036	525	6.163	660	3.953
395	0.044	530	6.498	665	3.509
400	0.065	535	6.791	670	3.093
405	0.114	540	7.070	675	2.720
410	0.222	545	7.304	680	2.390
415	0.440	550	7.549	685	2.088
420	0.837	555	7.802	690	1.821
425	1.475	560	7.999	695	1.585
430	2.314	565	8.222	700	1.375
435	3.356	570	8.432	705	1.189
440	4.931	575	8.624	710	1.028
445	7.067	580	8.780	715	0.886
450	8.007	585	8.912	720	0.762
455	6.521	590	8.990	725	0.657
460	4.703	595	8.999	730	0.566
465	3.638	600	8.943	735	0.487
470	2.852	605	8.803	740	0.420
475	2.312	610	8.581	745	0.363
480	2.093	615	8.279	750	0.312
485	2.157	620	7.934	755	0.271
490	2.400	625	7.496	760	0.234
495	2.842	630	7.000	765	0.202
500	3.429	635	6.504	770	0.175
505	4.060	640	5.961	775	0.152
510	4.688	645	5.434	780	0.023



REPORT NUMBER: RAB01753
DATE: 3/8/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: RDLED2S8-WN-TW (2" square recessed wallwasher)

Page 4 of 4

CIE Chromaticity Diagram

