

REPORT NUMBER: PRORATED FROM RAB02635

PAGE: 1 OF 9

ISSUE DATE: 12/13/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: SHARK8-100YNW/D10

LUMINAIRE: FABRICATED WHITE PLASTIC HOUSING, PERFORATED WHITE METAL HEAT SINK, 4 WHITE CIRCUIT BOARDS EACH WITH 64 LEDS, FROSTED POLYCARBONATE LENS ENCLOSURE.

LAMPS: TWO HUNDRED AND FIFTY SIX WHITE EMITTING DIODES (LEDs), TILTED 15-DEGREE FROM VERTICAL BASE-UP POSITION.

TOTAL INPUT WATTS = 94.5 AT 277.0 VOLTS

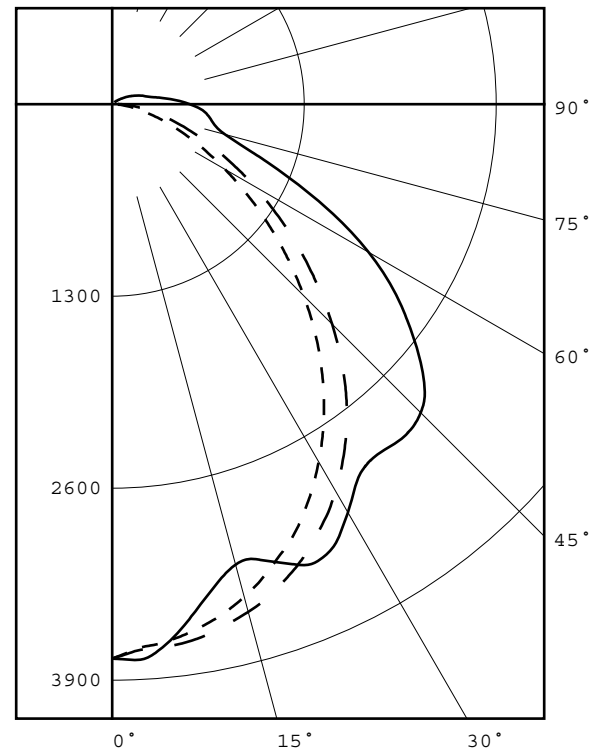
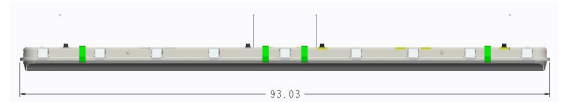
LED DRIVERS: 2 X RD-052-A1050-C-089C

(SEE PAGE 2 FOR MORE INFORMATION)

CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	
0	3753	3753	3753	3753	3753	
5	3667	3718	3707	3748	3699	349
15	3454	3278	3229	3338	3559	947
25	3062	3069	3384	3147	3244	1463
35	2500	2953	2990	3089	2759	1798
45	1834	2461	2955	2612	2107	1968
55	1175	2178	2394	2381	1422	1851
65	640	1448	1529	1655	838	1342
75	278	739	794	855	416	757
85	63	422	634	494	143	460
90	3	337	525	399	54	
95	3	262	397	312	37	271
105	3	119	220	148	26	130
115	3	46	126	61	15	60
125	3	14	48	19	10	21
135	5	9	14	10	7	8
145	7	7	9	7	7	5
155	7	5	7	5	7	3
165	7	5	5	3	7	1
175	7	5	5	5	7	0
180	5	5	5	5	5	

FLUX



LEGEND:

0-deg: - - - - -
 90-deg: _____
 180-deg: - . - . - .

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	2759	24.1
0- 40	4557	39.9
0- 60	8376	73.3
0- 90	10936	95.6
90-120	461	4.0
90-130	482	4.2
90-150	494	4.3
90-180	499	4.4
0-180	11435	100.0

TOTAL INPUT WATTS = 94.5

EFFICACY = 121.0 Lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG 180-DEG

SPACING CRITERIA : 1.1 1.3 1.2

Checked X.CAO
 Approved D.WANG-MUNSON

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ADDITIONAL INFORMATION

THIS REPORT WAS PRORATED FROM RAB TEST NUMBER 2635 WHICH WAS A 4' (128 LED) LUMINAIRE. THE DATA WAS DOUBLED TO REPRESENT AN 8' LUMINAIRE WITH 256 LEDS AND USING TWO OF THE SAME DRIVERS AS WAS USED FOR THE 4' TEST. ACTUAL PERFORMANCE MAY VARY.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 28.25 FEET

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PLANE : 0-DEG 90-DEG
BEAM ANGLE (50%) : 92.3 X 122.5 DEGREES
FIELD ANGLE (10%): 147.9 X 191.5 DEGREES

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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 96.060 5.150
HEIGHT OF SIDE : 1.860 1.860

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 90-DEG	AVERAGE 180-DEG
45	7970.	9615.	9154.
55	6244.	8626.	7556.
65	4556.	6387.	5962.
75	3133.	4090.	4690.
85	1854.	4439.	4209.

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ZONAL LUMEN SUMMARY

0- 5	89.
5- 10	259.
10- 15	407.
15- 20	540.
20- 25	673.
25- 30	790.
30- 35	871.
35- 40	927.
40- 45	974.
45- 50	995.
50- 55	967.
55- 60	884.
60- 65	752.
65- 70	590.
70- 75	434.
75- 80	323.
80- 85	255.
85- 90	205.
90- 95	158.
95-100	113.
100-105	76.
105-110	54.
110-115	37.
115-120	23.
120-125	13.
125-130	7.
130-135	4.
135-140	3.
140-145	3.
145-150	2.
150-155	1.
155-160	1.
160-165	1.
165-170	1.
170-175	0.
175-180	0.

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	89
5- 10	259
10- 15	407
15- 20	540
20- 25	673
25- 30	790
30- 35	871
35- 40	927
40- 45	974
45- 50	995
50- 55	967
55- 60	884
60- 65	752
65- 70	590
70- 75	434
75- 80	323
80- 85	255
85- 90	205
90- 95	158
95-100	113
100-105	76
105-110	54
110-115	37
115-120	23
120-125	13
125-130	7
130-135	4
135-140	3
140-145	3
145-150	2
150-155	1
155-160	1
160-165	1
165-170	1
170-175	0
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	349
0- 20	1296
0- 30	2759
0- 40	4557
0- 50	6525
0- 60	8376
0- 70	9718
0- 80	10476
0- 90	10936
0-100	11207
0-110	11337
0-120	11397
0-130	11418
0-140	11425
0-150	11430
0-160	11433
0-170	11434
0-180	11435

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

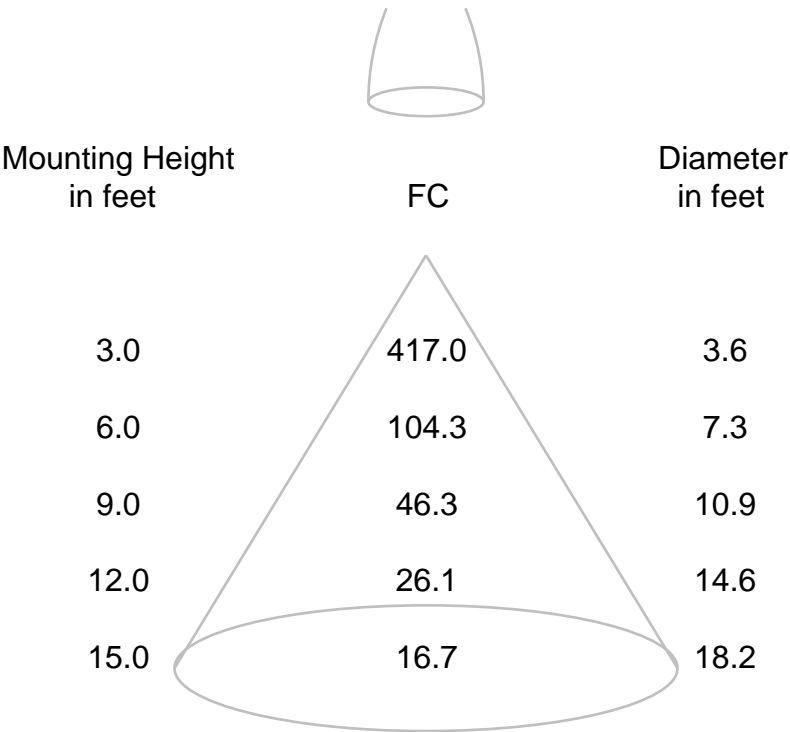
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

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	118	118	118	118	115	115	115	115	109	109	109	103	103	103	98	98	98	96
1	107	102	97	93	104	99	95	91	94	90	87	89	86	84	85	83	81	78
2	97	88	81	75	94	86	79	74	82	76	71	78	73	69	74	70	67	65
3	88	77	69	62	85	75	67	61	72	65	60	68	63	58	65	60	56	54
4	81	68	59	52	78	67	58	52	63	56	50	61	54	49	58	53	48	46
5	74	61	52	45	71	59	51	44	57	49	43	54	48	43	52	46	42	39
6	68	55	45	39	66	53	45	39	51	43	38	49	42	37	47	41	36	34
7	63	49	40	34	61	48	40	34	46	39	33	45	38	33	43	37	32	30
8	59	45	36	30	57	44	36	30	42	35	30	41	34	29	39	33	29	27
9	55	41	33	27	53	40	32	27	39	32	27	38	31	26	36	30	26	24
10	51	38	30	25	50	37	30	24	36	29	24	35	28	24	34	28	24	22

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.

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: RAB02812
DATE: 12/13/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: SHARK8-100YNW/D10

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: FABRICATED WHITE PLASTIC HOUSING, PERFORATED WHITE METAL HEAT SINK, 4 WHITE CIRCUIT BOARDS EACH WITH 64 LEDS, FROSTED POLYCARBONATE LENS ENCLOSURE.

LAMP: TWO HUNDRED AND FIFTY SIX WHITE EMITTING DIODES (LEDs), TILTED 15-DEGREE FROM VERTICAL BASE-UP POSITION.

DRIVER: 2 X RD-052-A1050-C-089C

OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (277.0 AND 120.0 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	12/05/17

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRIa,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. Measure electrical data including Total Harmonic Distortion (THD) at maximum nominal rated input voltage. Report Off-State Power.

PROCEDURE: The test sample was mounted inside the integrating sphere, energized, 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 60 HZ input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. Electrical data was also recorded at maximum nominal rated input voltage (120.0 VAC). 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:

PHOTOMETRIC	
Total Integrated Flux (lumens)	11435 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4064
Chromaticity Ordinate y	0.3909
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2364
Chromaticity Ordinate v'	0.5115
Correlated Color Temp CCT (K)	3477
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	32820 *
ELECTRICAL	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.358
Input Power (Watts)	94.5
Input Power Factor (%)	95.3
Input Current THD (%)	10.9
Input Voltage THD (%)	0.1
EFFICACY (Lumens/Watt)	
	121.0
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.788
Input Power (Watts)	93.9
Input Power Factor (%)	99.3
Input Current THD (%)	7.2
Input Voltage THD (%)	0.1
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	75
R1 Light greyish red	71
R2 Dark greyish yellow	84
R3 Strong yellowish green	94
R4 Moderate yellowish green	72
R5 Light bluish green	72
R6 Light blue	78
R7 Light violet	80
R8 Light reddish purple	49
R9 Strong red	-26
R10 Strong yellow	63
R11 Strong green	68
R12 Strong blue	52
R13 Light yellowish pink (skin)	74
R14 Moderate olive green (leaf)	97

*NOTE:

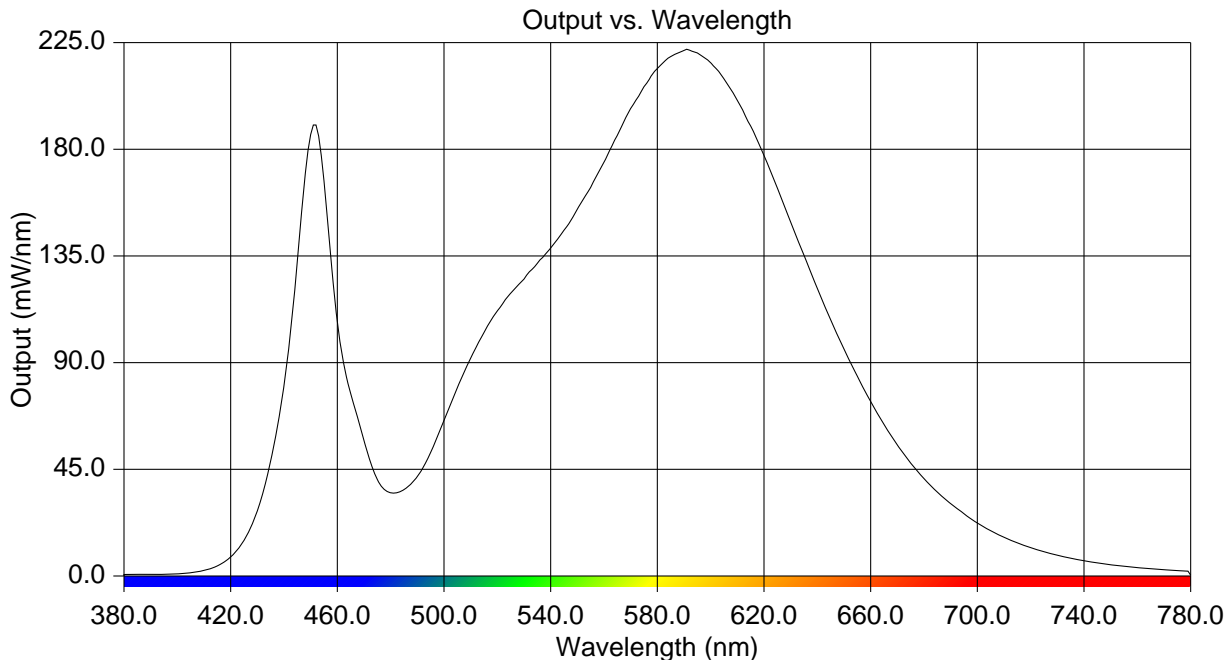
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	0.617	515	102.713	650	95.736
385	0.624	520	111.824	655	84.298
390	0.667	525	119.215	660	73.696
395	0.726	530	125.248	665	63.980
400	0.957	535	131.908	670	55.250
405	1.370	540	138.287	675	47.601
410	2.300	545	145.880	680	41.077
415	4.257	550	154.769	685	35.442
420	8.013	555	163.934	690	30.467
425	15.095	560	174.612	695	26.271
430	27.461	565	186.186	700	22.310
435	48.680	570	197.285	705	19.054
440	80.239	575	206.438	710	16.283
445	132.704	580	214.069	715	13.991
450	186.238	585	219.119	720	11.987
455	166.657	590	221.707	725	10.226
460	107.167	595	220.667	730	8.750
465	77.002	600	216.490	735	7.475
470	57.079	605	209.734	740	6.406
475	40.721	610	200.637	745	5.523
480	35.015	615	189.838	750	4.760
485	36.447	620	177.330	755	4.101
490	42.059	625	163.967	760	3.524
495	52.150	630	149.198	765	3.041
500	65.653	635	135.324	770	2.642
505	79.536	640	121.224	775	2.275
510	92.075	645	108.023	780	0.345



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CIE Chromaticity Diagram

