

REPORT NUMBER: RAB02111

ISSUE DATE: 06/20/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: SK8XL10RDYY

LUMINAIRE: STAMPED STEEL CEILING PAN WITH WHITE FINISH, 7 LED BOARDS EACH WITH 6 LEDS, ACRYLIC DROP LENS WITH SMOOTH FINISH AND SILVER TRIM.

LAMPS: FORTY-TWO WHITE LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-UP POSITION.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS = 10.312 AT 120.0 VOLTS.

LED DRIVER: RDD-MK015-MKP40-A0500

(SEE PAGE 2 FOR MORE INFORMATION)

DEG	CANDELA	LUMENS
0	259	
5	258	25
15	248	70
25	228	105
35	200	125
45	166	128
55	129	116
65	91	90
75	54	58
85	25	28
90	16	
95	9	11
105	5	5
115	6	6
125	8	7
135	10	7
145	11	7
155	13	6
165	13	4
175	8	1
180	2	

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	200	25.0
0- 40	325	40.6
0- 60	569	71.2
0- 90	745	93.2
90-120	22	2.8
90-130	29	3.7
90-150	44	5.5
90-180	55	6.8
0-180	799	100.0

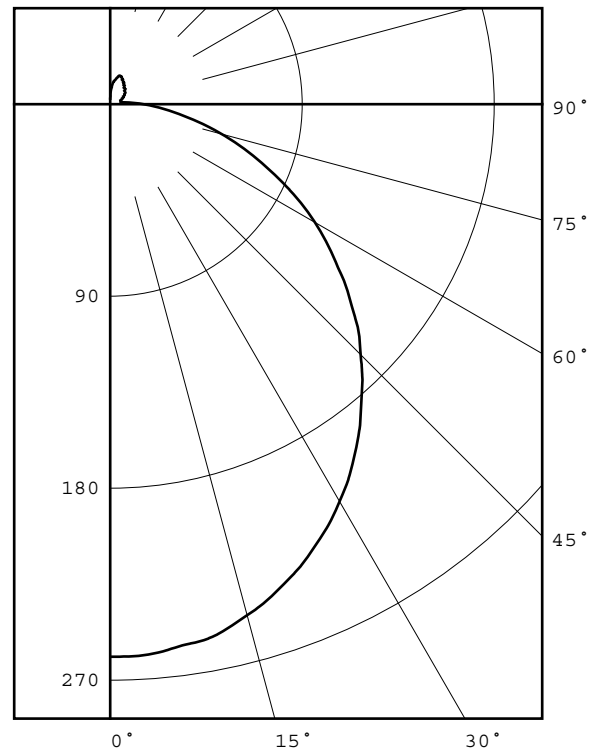
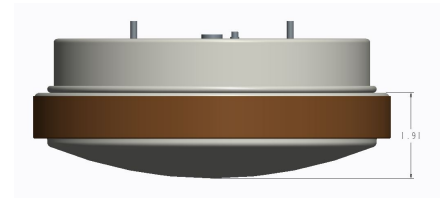
TOTAL INPUT WATTS = 10.3

EFFICACY = 77.6 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 1.2

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Checked X.CAO
Approved D.WANG-MUNSON

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ADDITIONAL INFORMATION

TST PROCEDURE: IESNA LM 79-08
ACCREDITED LABORATORY CODE 201058-0
TEST DISTANCE = 25.25 FEET

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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LUMINOUS DIAMETER: 8.000

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	7236.
55	6933.
65	6637.
75	6431.
85	8842.

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CANDELA DISTRIBUTION

	0.0
0.0	259
5.0	258
10.0	255
15.0	248
20.0	239
25.0	228
30.0	215
35.0	200
40.0	183
45.0	166
50.0	148
55.0	129
60.0	111
65.0	91
70.0	72
75.0	54
80.0	38
85.0	25
90.0	16
95.0	9
100.0	5
105.0	5
110.0	5
115.0	6
120.0	7
125.0	8
130.0	9
135.0	10
140.0	10
145.0	11
150.0	12
155.0	13
160.0	14
165.0	13
170.0	11
175.0	8
180.0	2

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ZONAL LUMEN SUMMARY

0- 5	6.
5- 10	18.
10- 15	30.
15- 20	40.
20- 25	49.
25- 30	56.
30- 35	61.
35- 40	64.
40- 45	65.
45- 50	64.
50- 55	60.
55- 60	55.
60- 65	49.
65- 70	41.
70- 75	33.
75- 80	25.
80- 85	17.
85- 90	11.
90- 95	7.
95-100	4.
100-105	3.
105-110	3.
110-115	3.
115-120	3.
120-125	4.
125-130	4.
130-135	4.
135-140	4.
140-145	4.
145-150	3.
150-155	3.
155-160	3.
160-165	2.
165-170	1.
170-175	1.
175-180	0.

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	6
5- 10	18
10- 15	30
15- 20	40
20- 25	49
25- 30	56
30- 35	61
35- 40	64
40- 45	65
45- 50	64
50- 55	60
55- 60	55
60- 65	49
65- 70	41
70- 75	33
75- 80	25
80- 85	17
85- 90	11
90- 95	7
95-100	4
100-105	3
105-110	3
110-115	3
115-120	3
120-125	4
125-130	4
130-135	4
135-140	4
140-145	4
145-150	3
150-155	3
155-160	3
160-165	2
165-170	1
170-175	1
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	25
0- 20	95
0- 30	200
0- 40	325
0- 50	453
0- 60	569
0- 70	659
0- 80	716
0- 90	745
0-100	755
0-110	760
0-120	767
0-130	774
0-140	781
0-150	788
0-160	794
0-170	798
0-180	799

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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	117	117	117	117	114	114	114	114	107	107	107	101	101	101	96	96	96	93
1	106	101	97	93	103	98	94	91	93	90	86	88	85	83	83	81	79	76
2	97	88	81	75	93	86	79	74	81	76	71	77	72	68	73	69	66	63
3	88	77	69	62	85	75	67	61	71	65	59	67	62	57	64	59	56	53
4	80	68	59	53	78	67	58	52	63	56	50	60	54	49	57	52	48	45
5	74	61	52	45	71	59	51	45	57	49	44	54	47	42	51	46	41	39
6	68	55	46	39	66	54	45	39	51	44	38	49	42	37	47	41	36	34
7	63	50	41	35	61	49	40	34	46	39	34	44	38	33	43	37	32	30
8	59	45	37	31	57	44	36	31	42	35	30	41	34	30	39	33	29	27
9	55	42	33	28	53	41	33	28	39	32	27	38	31	27	36	30	26	24
10	52	38	30	25	50	38	30	25	36	29	25	35	29	24	33	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.

REPORT NUMBER: RAB02112
 DATE: 6/20/2016
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ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: STAMPED STEEL CEILING PAN WITH WHITE FINISH, 7 LED BOARDS EACH WITH 6 LEDS, ACRYLIC DROP LENS WITH SMOOTH FINISH AND SILVER TRIM.

LAMP: FORTY-TWO WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

DRIVER: RDD-MK015-MKP40-A0500

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (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	5/31/17

OBJECT OF TEST: Measure the 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. 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	<u>X.CAO</u>
Approved	<u>D.WANG-MUNSON</u>
	Lighting Engineer

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RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4635
Chromaticity Ordinate y	0.4145
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2631
Chromaticity Ordinate v'	0.5294
Correlated Color Temp CCT (K)	2679
Color Rendering Index (CRIa)	83
Color Rendering Index 1 (Light greyish red)	81
Color Rendering Index 2 (Dark greyish yellow)	92
Color Rendering Index 3 (Strong yellowish green)	95
Color Rendering Index 4 (Moderate yellowish green)	80
Color Rendering Index 5 (Light bluish green)	82
Color Rendering Index 6 (Light blue)	92
Color Rendering Index 7 (Light violet)	81
Color Rendering Index 8 (Light reddish purple)	57
Color Rendering Index 9 (Strong red)	9
Color Rendering Index 10 (Strong yellow)	83
Color Rendering Index 11 (Strong green)	79
Color Rendering Index 12 (Strong blue)	76
Color Rendering Index 13 (Light yellowish pink (skin))	83
Color Rendering Index 14 (Moderate olive green (leaf))	98
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	2487 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.090
Input Power (Watts)	10.3
Input Power Factor (%)	95.9
Input Current THD (%)	22.0
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

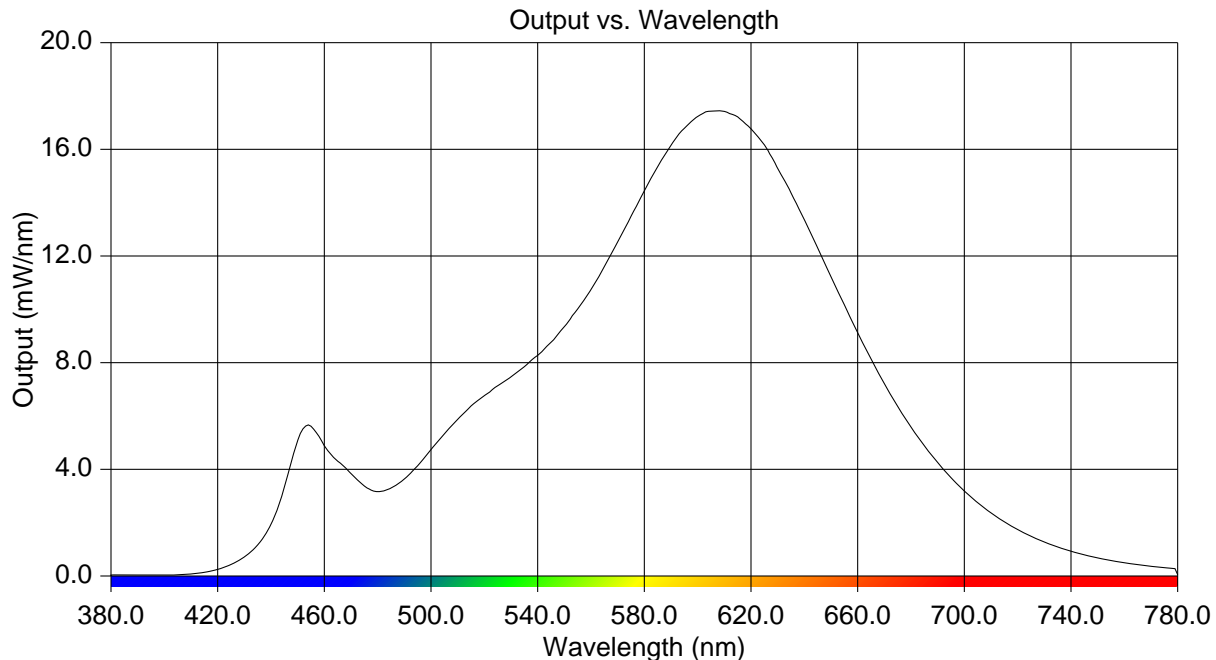
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	0.037	515	6.375	650	11.216
385	0.036	520	6.761	655	10.173
390	0.035	525	7.132	660	9.122
395	0.035	530	7.464	665	8.140
400	0.036	535	7.849	670	7.206
405	0.045	540	8.280	675	6.361
410	0.071	545	8.764	680	5.591
415	0.137	550	9.343	685	4.878
420	0.246	555	10.013	690	4.247
425	0.433	560	10.745	695	3.688
430	0.712	565	11.594	700	3.190
435	1.165	570	12.534	705	2.752
440	1.941	575	13.488	710	2.367
445	3.323	580	14.441	715	2.027
450	5.083	585	15.367	720	1.740
455	5.617	590	16.153	725	1.486
460	4.883	595	16.787	730	1.270
465	4.315	600	17.235	735	1.085
470	3.836	605	17.424	740	0.927
475	3.375	610	17.423	745	0.796
480	3.157	615	17.218	750	0.678
485	3.299	620	16.768	755	0.580
490	3.627	625	16.182	760	0.497
495	4.134	630	15.284	765	0.424
500	4.735	635	14.367	770	0.363
505	5.324	640	13.368	775	0.311
510	5.879	645	12.306	780	0.046



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CIE Chromaticity Diagram

