

REPORT NUMBER: RAB02182

ISSUE DATE: 07/05/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: SK12XL12RDY

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

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

NOTE: DATA SHOWN IS ABSOLUTE FOR THE
SAMPLE PROVIDED.

TOTAL INPUT WATTS = 12.038 AT 120.0 VOLTS.

LED DRIVER: RDD-MK015-MKP40-A0500

(SEE PAGE 2 FOR MORE INFORMATION)

DEG	CANDELA	LUMENS
0	301	
5	300	29
15	291	82
25	272	125
35	244	152
45	207	160
55	165	148
65	119	118
75	73	78
85	38	42
90	25	
95	15	17
105	6	7
115	5	5
125	6	6
135	7	6
145	8	5
155	9	4
165	9	3
175	7	1
180	7	

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	236	23.9
0- 40	388	39.4
0- 60	696	70.6
0- 90	933	94.6
90-120	29	3.0
90-130	35	3.6
90-150	46	4.6
90-180	53	5.4
0-180	986	100.0

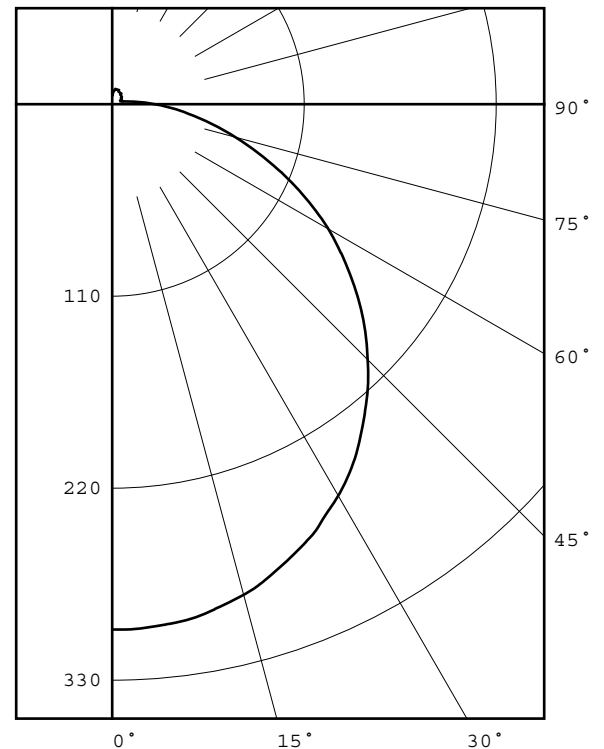
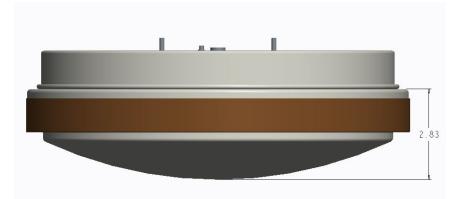
TOTAL INPUT WATTS = 12.0

EFFICACY = 82.2 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 1.3

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Checked	<u>X CAO</u>
Approved	<u>D HEAD</u>

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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: 11.060
HEIGHT OF SIDE : 2.830

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	3561.
55	3166.
65	2673.
75	2053.
85	1489.

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CANDELA DISTRIBUTION

	0.0
0.0	301
5.0	300
10.0	297
15.0	291
20.0	282
25.0	272
30.0	259
35.0	244
40.0	226
45.0	207
50.0	187
55.0	165
60.0	143
65.0	119
70.0	95
75.0	73
80.0	54
85.0	38
90.0	25
95.0	15
100.0	9
105.0	6
110.0	5
115.0	5
120.0	6
125.0	6
130.0	7
135.0	7
140.0	8
145.0	8
150.0	8
155.0	9
160.0	9
165.0	9
170.0	8
175.0	7
180.0	7

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ZONAL LUMEN SUMMARY

0- 5	7.
5- 10	21.
10- 15	35.
15- 20	47.
20- 25	58.
25- 30	67.
30- 35	74.
35- 40	78.
40- 45	80.
45- 50	80.
50- 55	76.
55- 60	71.
60- 65	64.
65- 70	54.
70- 75	44.
75- 80	34.
80- 85	25.
85- 90	17.
90- 95	11.
95-100	7.
100-105	4.
105-110	3.
110-115	3.
115-120	3.
120-125	3.
125-130	3.
130-135	3.
135-140	3.
140-145	3.
145-150	2.
150-155	2.
155-160	2.
160-165	1.
165-170	1.
170-175	1.
175-180	0.

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	7
5- 10	21
10- 15	35
15- 20	47
20- 25	58
25- 30	67
30- 35	74
35- 40	78
40- 45	80
45- 50	80
50- 55	76
55- 60	71
60- 65	64
65- 70	54
70- 75	44
75- 80	34
80- 85	25
85- 90	17
90- 95	11
95-100	7
100-105	4
105-110	3
110-115	3
115-120	3
120-125	3
125-130	3
130-135	3
135-140	3
140-145	3
145-150	2
150-155	2
155-160	2
160-165	1
165-170	1
170-175	1
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	29
0- 20	111
0- 30	236
0- 40	388
0- 50	548
0- 60	696
0- 70	814
0- 80	891
0- 90	933
0-100	950
0-110	957
0-120	963
0-130	968
0-140	974
0-150	979
0-160	983
0-170	985
0-180	986

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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	114	114	114	114	108	108	108	102	102	102	97	97	97	95
1	106	101	96	92	103	98	94	90	93	89	86	88	85	83	84	81	79	77
2	96	87	80	74	93	85	78	73	81	75	70	76	72	68	73	69	66	63
3	87	76	68	61	84	74	67	60	71	64	58	67	61	57	64	59	55	53
4	80	67	58	51	77	66	57	51	63	55	49	60	53	48	57	51	47	45
5	73	60	51	44	71	59	50	44	56	48	43	53	47	42	51	45	41	38
6	68	54	45	38	65	53	44	38	50	43	37	48	42	36	46	40	36	33
7	63	49	40	34	61	48	39	33	46	38	33	44	37	32	42	36	32	29
8	58	45	36	30	56	44	35	30	42	34	29	40	34	29	39	33	28	26
9	54	41	33	27	53	40	32	27	38	31	26	37	31	26	36	30	25	24
10	51	38	30	24	49	37	29	24	36	29	24	34	28	23	33	27	23	21

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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ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

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

LAMP: FORTY-NINE 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 (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	<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	0.4431
Chromaticity Ordinate y	0.4048
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2543
Chromaticity Ordinate v'	0.5226
Correlated Color Temp CCT (K)	2904
Color Rendering Index (CRIa)	82
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)	91
Color Rendering Index 7 (Light violet)	81
Color Rendering Index 8 (Light reddish purple)	58
Color Rendering Index 9 (Strong red)	7
Color Rendering Index 10 (Strong yellow)	82
Color Rendering Index 11 (Strong green)	79
Color Rendering Index 12 (Strong blue)	74
Color Rendering Index 13 (Light yellowish pink (skin))	84
Color Rendering Index 14 (Moderate olive green (leaf))	98
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	3013 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.104
Input Power (Watts)	12.0
Input Power Factor (%)	96.6
Input Current THD (%)	21.4
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

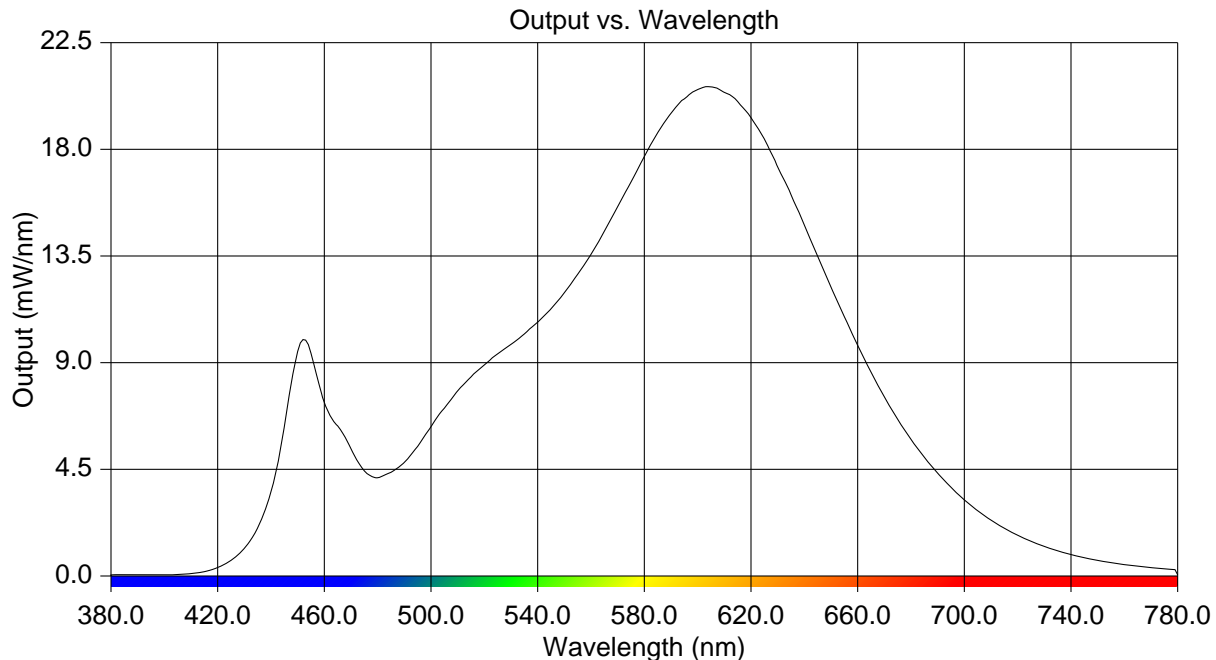
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	0.045	515	8.397	650	12.182
385	0.050	520	8.905	655	10.940
390	0.044	525	9.371	660	9.733
395	0.051	530	9.759	665	8.602
400	0.052	535	10.210	670	7.537
405	0.058	540	10.718	675	6.621
410	0.093	545	11.271	680	5.759
415	0.182	550	11.952	685	5.009
420	0.360	555	12.728	690	4.338
425	0.660	560	13.583	695	3.745
430	1.165	565	14.523	700	3.210
435	2.030	570	15.585	705	2.756
440	3.546	575	16.621	710	2.361
445	6.323	580	17.690	715	2.009
450	9.474	585	18.713	720	1.718
455	9.395	590	19.522	725	1.461
460	7.314	595	20.128	730	1.243
465	6.334	600	20.524	735	1.059
470	5.364	605	20.630	740	0.904
475	4.434	610	20.404	745	0.770
480	4.142	615	20.017	750	0.659
485	4.374	620	19.335	755	0.562
490	4.789	625	18.449	760	0.481
495	5.468	630	17.258	765	0.411
500	6.299	635	16.087	770	0.352
505	7.078	640	14.788	775	0.304
510	7.818	645	13.480	780	0.045



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CIE Chromaticity Diagram

