

REPORT NUMBER: RAB02184

ISSUE DATE: 07/05/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: SK12XL12RDYN

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 = 12.143 AT 120.0 VOLTS.

LED DRIVER: RDD-MK015-MKP40-A0500

(SEE PAGE 2 FOR MORE INFORMATION)

DEG	CANDELA	LUMENS
0	333	
5	332	32
15	321	91
25	300	138
35	270	169
45	230	177
55	183	164
65	132	130
75	81	86
85	41	46
90	27	
95	17	19
105	6	7
115	6	6
125	6	6
135	7	5
145	8	5
155	8	4
165	9	2
175	6	1
180	6	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	261	24.0
0- 40	429	39.5
0- 60	770	70.8
0- 90	1032	95.0
90-120	32	3.0
90-130	38	3.5
90-150	48	4.4
90-180	55	5.0
0-180	1087	100.0

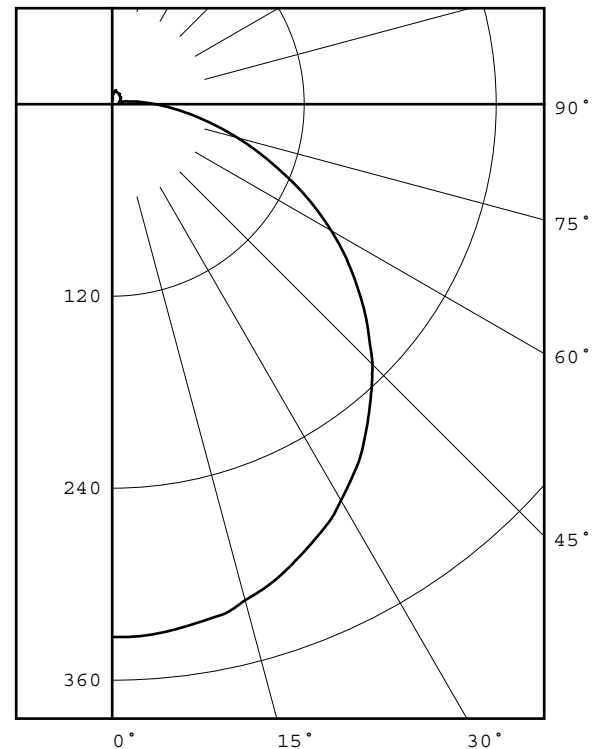
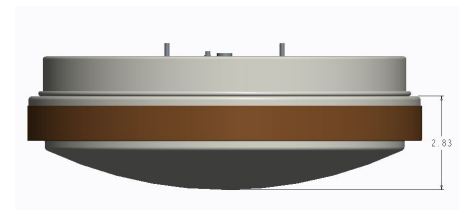
TOTAL INPUT WATTS = 12.1

EFFICACY = 89.8 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 1.3

PAGE: 1 OF 7
DATE SAMPLE TESTED: 07/05/16



Checked X.CAO
Approved D.WANG-MUNSON

REPORT NUMBER: RAB02184
ISSUE DATE: 07/05/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 7
DATE SAMPLE TESTED: 07/05/16

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.

REPORT NUMBER: RAB02184
ISSUE DATE: 07/05/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 3 OF 7
DATE SAMPLE TESTED: 07/05/16

LUMINOUS DIAMETER: 11.060
HEIGHT OF SIDE : 2.830

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	3957.
55	3512.
65	2965.
75	2278.
85	1606.

REPORT NUMBER: RAB02184
ISSUE DATE: 07/05/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 4 OF 7
DATE SAMPLE TESTED: 07/05/16

CANDELA DISTRIBUTION

	0.0
0.0	333
5.0	332
10.0	328
15.0	321
20.0	312
25.0	300
30.0	286
35.0	270
40.0	250
45.0	230
50.0	207
55.0	183
60.0	158
65.0	132
70.0	105
75.0	81
80.0	59
85.0	41
90.0	27
95.0	17
100.0	10
105.0	6
110.0	6
115.0	6
120.0	6
125.0	6
130.0	7
135.0	7
140.0	7
145.0	8
150.0	8
155.0	8
160.0	8
165.0	9
170.0	8
175.0	6
180.0	6

REPORT NUMBER: RAB02184
ISSUE DATE: 07/05/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 5 OF 7
DATE SAMPLE TESTED: 07/05/16

ZONAL LUMEN SUMMARY

0- 5	8.
5- 10	24.
10- 15	39.
15- 20	52.
20- 25	64.
25- 30	74.
30- 35	82.
35- 40	87.
40- 45	89.
45- 50	88.
50- 55	85.
55- 60	79.
60- 65	70.
65- 70	60.
70- 75	49.
75- 80	37.
80- 85	27.
85- 90	19.
90- 95	12.
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	2.
145-150	2.
150-155	2.
155-160	2.
160-165	1.
165-170	1.
170-175	1.
175-180	0.

REPORT NUMBER: RAB02184
ISSUE DATE: 07/05/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 7
DATE SAMPLE TESTED: 07/05/16

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	8
5- 10	24
10- 15	39
15- 20	52
20- 25	64
25- 30	74
30- 35	82
35- 40	87
40- 45	89
45- 50	88
50- 55	85
55- 60	79
60- 65	70
65- 70	60
70- 75	49
75- 80	37
80- 85	27
85- 90	19
90- 95	12
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	2
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	32
0- 20	122
0- 30	261
0- 40	429
0- 50	606
0- 60	770
0- 70	900
0- 80	986
0- 90	1032
0-100	1051
0-110	1058
0-120	1064
0-130	1070
0-140	1075
0-150	1080
0-160	1084
0-170	1086
0-180	1087

REPORT NUMBER: RAB02184
ISSUE DATE: 07/05/16

PAGE: 7 OF 7
DATE SAMPLE TESTED: 07/05/16

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	118	118	118	118	115	115	115	115	108	108	108	103	103	103	97	97	97	95
1	106	101	96	92	103	98	94	90	93	90	86	88	85	83	84	82	79	77
2	96	88	80	74	93	85	78	73	81	75	70	77	72	68	73	69	66	63
3	88	76	68	61	85	74	67	60	71	64	59	67	62	57	64	59	55	53
4	80	68	58	51	77	66	57	51	63	55	50	60	53	48	57	52	47	45
5	73	60	51	44	71	59	50	44	56	48	43	54	47	42	51	45	41	39
6	68	54	45	38	65	53	44	38	51	43	37	48	42	37	46	40	36	34
7	63	49	40	34	61	48	39	33	46	38	33	44	37	32	42	36	32	30
8	58	45	36	30	56	44	35	30	42	35	29	40	34	29	39	33	28	26
9	54	41	33	27	53	40	32	27	39	31	26	37	31	26	36	30	26	24
10	51	38	30	24	50	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.

REPORT NUMBER: RAB02185
DATE: 7/1/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: SK12XL12RDYN

Page 1 of 4

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 X.CAO

Approved D.WANG-MUNSON
Lighting Engineer

REPORT NUMBER: RAB02185
 DATE: 7/1/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: SK12XL12RDYN

Page 2 of 4

RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4097
Chromaticity Ordinate y	0.3972
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2359
Chromaticity Ordinate v'	0.5146
Correlated Color Temp CCT (K)	3457
Color Rendering Index (CRIa)	82
Color Rendering Index 1 (Light greyish red)	80
Color Rendering Index 2 (Dark greyish yellow)	89
Color Rendering Index 3 (Strong yellowish green)	97
Color Rendering Index 4 (Moderate yellowish green)	81
Color Rendering Index 5 (Light bluish green)	81
Color Rendering Index 6 (Light blue)	87
Color Rendering Index 7 (Light violet)	84
Color Rendering Index 8 (Light reddish purple)	61
Color Rendering Index 9 (Strong red)	4
Color Rendering Index 10 (Strong yellow)	76
Color Rendering Index 11 (Strong green)	80
Color Rendering Index 12 (Strong blue)	65
Color Rendering Index 13 (Light yellowish pink (skin))	82
Color Rendering Index 14 (Moderate olive green (leaf))	98
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	3240 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.105
Input Power (Watts)	12.1
Input Power Factor (%)	96.4
Input Current THD (%)	22.5
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

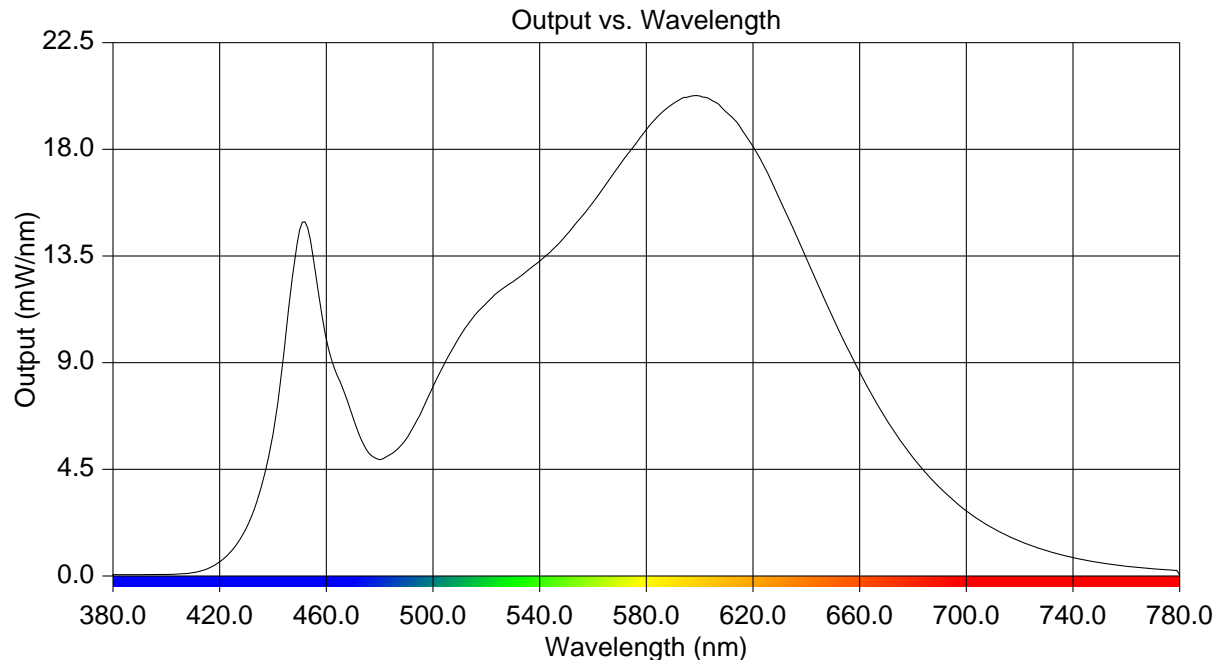
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB02185
 DATE: 7/1/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: SK12XL12RDYN

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.056	515	10.898	650	10.878
385	0.057	520	11.512	655	9.705
390	0.056	525	12.039	660	8.595
395	0.060	530	12.413	665	7.554
400	0.066	535	12.846	670	6.603
405	0.084	540	13.291	675	5.764
410	0.140	545	13.768	680	4.993
415	0.285	550	14.383	685	4.326
420	0.594	555	15.057	690	3.737
425	1.131	560	15.763	695	3.215
430	2.025	565	16.529	700	2.753
435	3.502	570	17.344	705	2.358
440	6.015	575	18.085	710	2.026
445	10.359	580	18.828	715	1.719
450	14.606	585	19.472	720	1.468
455	13.491	590	19.926	725	1.244
460	9.981	595	20.189	730	1.061
465	8.237	600	20.253	735	0.909
470	6.688	605	20.036	740	0.773
475	5.338	610	19.567	745	0.663
480	4.909	615	18.982	750	0.568
485	5.192	620	18.121	755	0.481
490	5.780	625	17.130	760	0.413
495	6.768	630	15.888	765	0.356
500	7.987	635	14.682	770	0.304
505	9.093	640	13.406	775	0.262
510	10.111	645	12.116	780	0.039



REPORT NUMBER: RAB02185
DATE: 7/1/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: SK12XL12RDYN

Page 4 of 4

CIE Chromaticity Diagram

