

REPORT NUMBER: RAB02167

ISSUE DATE: 07/01/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: SK12XL12RYY

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

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

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS = 11.817 AT 120.0 VOLTS.

LED DRIVER: RDD-MK015-MKP40-A0500

TST PROCEDURE: IESNA LM 79-08

ACCREDITED LABORATORY CODE 201058-0

(SEE PAGE 2 FOR MORE INFORMATION)

PAGE: 1 OF 7
DATE SAMPLE TESTED: 07/01/16

DEG	CANDELA	LUMENS
0	284	
5	283	27
15	275	78
25	258	119
35	233	146
45	200	154
55	163	146
65	123	122
75	86	91
85	55	61
90	44	
95	33	37
105	21	22
115	15	15
125	15	14
135	16	12
145	17	11
155	18	8
165	17	5
175	13	1
180	14	

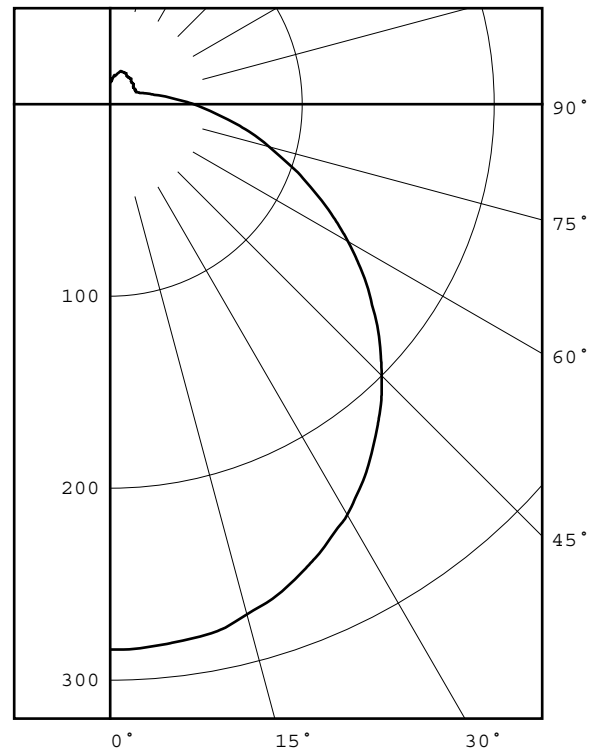
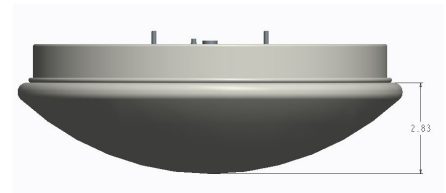
ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	224	20.9
0- 40	369	34.5
0- 60	669	62.6
0- 90	943	88.2
90-120	75	7.0
90-130	88	8.3
90-150	112	10.4
90-180	126	11.8
0-180	1069	100.0

TOTAL INPUT WATTS = 11.8

EFFICACY = 90.6 Lm/W

CIE TYPE - SEMI-DIRECT

LUMINAIRE SPACING CRITERION = 1.3



Checked X.CAO
Approved D.WANG-MUNSON

REPORT NUMBER: RAB02167

PAGE: 2 OF 7

ISSUE DATE: 07/01/16

DATE SAMPLE TESTED: 07/01/16

PREPARED FOR: RAB LIGHTING INC.

ADDITIONAL INFORMATION

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: RAB02167
ISSUE DATE: 07/01/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 3 OF 7
DATE SAMPLE TESTED: 07/01/16

LUMINOUS DIAMETER: 5.530

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	18247.
55	18333.
65	18776.
75	21436.
85	40710.

REPORT NUMBER: RAB02167
ISSUE DATE: 07/01/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 4 OF 7
DATE SAMPLE TESTED: 07/01/16

CANDELA DISTRIBUTION

	0.0
0.0	284
5.0	283
10.0	281
15.0	275
20.0	268
25.0	258
30.0	247
35.0	233
40.0	217
45.0	200
50.0	182
55.0	163
60.0	143
65.0	123
70.0	104
75.0	86
80.0	70
85.0	55
90.0	44
95.0	33
100.0	26
105.0	21
110.0	17
115.0	15
120.0	15
125.0	15
130.0	16
135.0	16
140.0	17
145.0	17
150.0	17
155.0	18
160.0	18
165.0	17
170.0	15
175.0	13
180.0	14

REPORT NUMBER: RAB02167
ISSUE DATE: 07/01/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 5 OF 7
DATE SAMPLE TESTED: 07/01/16

ZONAL LUMEN SUMMARY

0- 5	7.
5- 10	20.
10- 15	33.
15- 20	45.
20- 25	55.
25- 30	64.
30- 35	71.
35- 40	75.
40- 45	77.
45- 50	77.
50- 55	75.
55- 60	71.
60- 65	65.
65- 70	57.
70- 75	49.
75- 80	42.
80- 85	34.
85- 90	27.
90- 95	21.
95-100	16.
100-105	12.
105-110	10.
110-115	8.
115-120	7.
120-125	7.
125-130	7.
130-135	6.
135-140	6.
140-145	6.
145-150	5.
150-155	4.
155-160	4.
160-165	3.
165-170	2.
170-175	1.
175-180	0.

REPORT NUMBER: RAB02167
 ISSUE DATE: 07/01/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 7
 DATE SAMPLE TESTED: 07/01/16

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	7
5- 10	20
10- 15	33
15- 20	45
20- 25	55
25- 30	64
30- 35	71
35- 40	75
40- 45	77
45- 50	77
50- 55	75
55- 60	71
60- 65	65
65- 70	57
70- 75	49
75- 80	42
80- 85	34
85- 90	27
90- 95	21
95-100	16
100-105	12
105-110	10
110-115	8
115-120	7
120-125	7
125-130	7
130-135	6
135-140	6
140-145	6
145-150	5
150-155	4
155-160	4
160-165	3
165-170	2
170-175	1
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	27
0- 20	105
0- 30	224
0- 40	369
0- 50	524
0- 60	669
0- 70	791
0- 80	882
0- 90	943
0-100	980
0-110	1003
0-120	1018
0-130	1032
0-140	1044
0-150	1055
0-160	1063
0-170	1068
0-180	1069

REPORT NUMBER: RAB02167
ISSUE DATE: 07/01/16

PAGE: 7 OF 7
DATE SAMPLE TESTED: 07/01/16

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	116	116	116	116	112	112	112	112	105	105	105	98	98	98	91	91	91	88
1	104	98	93	89	100	95	90	86	89	85	81	83	80	77	77	75	73	70
2	94	85	77	71	90	82	75	69	76	71	66	71	67	63	67	63	59	57
3	85	74	65	58	82	71	63	57	67	60	54	62	57	52	58	54	50	47
4	78	65	56	49	74	63	54	48	59	52	46	55	49	44	52	47	42	40
5	71	58	49	42	68	56	47	41	53	45	39	49	43	38	46	41	36	34
6	66	52	43	36	63	50	42	36	47	40	34	45	38	33	42	36	32	30
7	61	47	38	32	58	46	37	31	43	36	30	41	34	29	38	33	28	26
8	57	43	34	28	54	42	33	28	39	32	27	37	31	26	35	29	25	23
9	53	39	31	25	51	38	30	25	36	29	24	34	28	23	32	27	23	21
10	49	36	28	23	48	35	28	22	33	27	22	32	26	21	30	25	21	19

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: RAB02174
DATE: 6/30/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: SK12XL12RYY

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.

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: RAB02174
 DATE: 6/30/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: SK12XL12RYY

Page 2 of 4

RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4584
Chromaticity Ordinate y	0.4068
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2633
Chromaticity Ordinate v'	0.5257
Correlated Color Temp CCT (K)	2690
Color Rendering Index (CRIa)	84
Color Rendering Index 1 (Light greyish red)	84
Color Rendering Index 2 (Dark greyish yellow)	96
Color Rendering Index 3 (Strong yellowish green)	91
Color Rendering Index 4 (Moderate yellowish green)	80
Color Rendering Index 5 (Light bluish green)	85
Color Rendering Index 6 (Light blue)	96
Color Rendering Index 7 (Light violet)	79
Color Rendering Index 8 (Light reddish purple)	59
Color Rendering Index 9 (Strong red)	16
Color Rendering Index 10 (Strong yellow)	91
Color Rendering Index 11 (Strong green)	81
Color Rendering Index 12 (Strong blue)	80
Color Rendering Index 13 (Light yellowish pink (skin))	87
Color Rendering Index 14 (Moderate olive green (leaf))	96
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	3395 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.102
Input Power (Watts)	11.8
Input Power Factor (%)	96.4
Input Current THD (%)	21.8
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

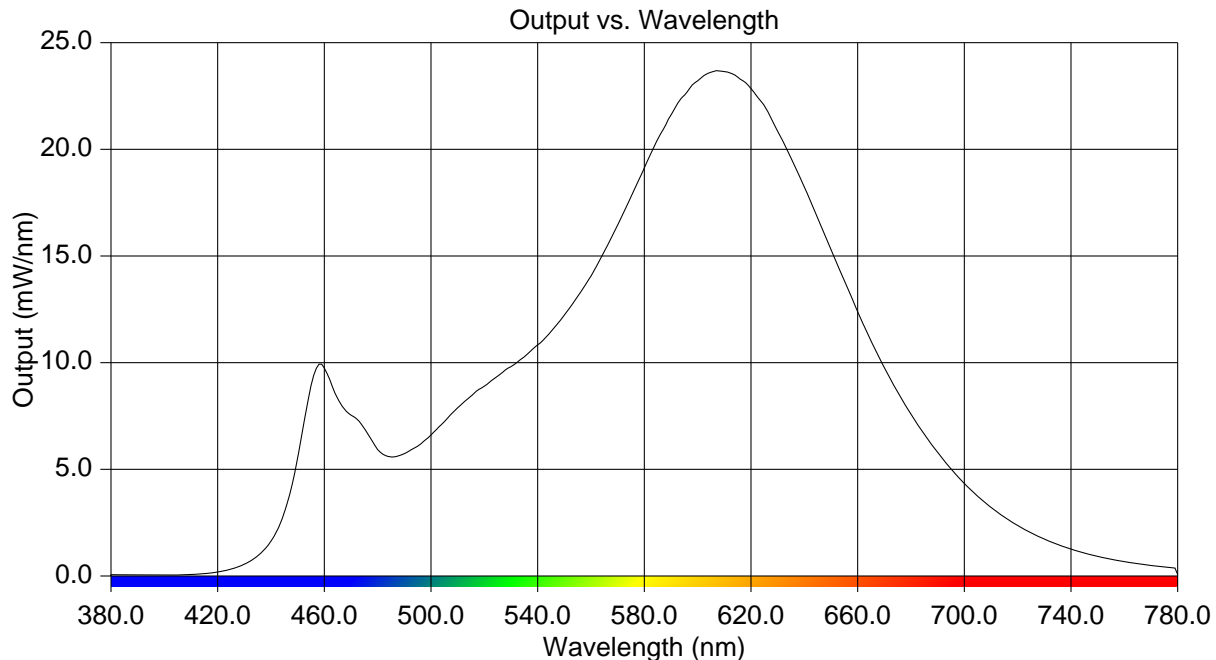
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB02174
 DATE: 6/30/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: SK12XL12RYY

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.056	515	8.428	650	15.303
385	0.054	520	8.898	655	13.842
390	0.050	525	9.367	660	12.386
395	0.049	530	9.819	665	11.015
400	0.048	535	10.275	670	9.756
405	0.052	540	10.836	675	8.633
410	0.065	545	11.459	680	7.587
415	0.108	550	12.228	685	6.636
420	0.189	555	13.107	690	5.771
425	0.322	560	14.058	695	5.025
430	0.550	565	15.192	700	4.341
435	0.942	570	16.447	705	3.742
440	1.635	575	17.779	710	3.218
445	2.979	580	19.128	715	2.761
450	5.542	585	20.477	720	2.374
455	8.920	590	21.621	725	2.024
460	9.744	595	22.530	730	1.726
465	8.323	600	23.214	735	1.475
470	7.547	605	23.614	740	1.259
475	6.908	610	23.652	745	1.077
480	5.923	615	23.385	750	0.924
485	5.583	620	22.845	755	0.785
490	5.734	625	22.062	760	0.671
495	6.080	630	20.844	765	0.576
500	6.610	635	19.588	770	0.491
505	7.223	640	18.231	775	0.423
510	7.886	645	16.778	780	0.063



REPORT NUMBER: RAB02174
DATE: 6/30/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: SK12XL12RY

Page 4 of 4

CIE Chromaticity Diagram

