

REPORT NUMBER: RAB02113

ISSUE DATE: 06/20/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: SK12XL12RDYY

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 = 11.823 AT 120.0 VOLTS.

LED DRIVER: RDD-MK015-MKP40-A0500

\*(SEE PAGE 2 FOR MORE INFORMATION)\*

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DEG	CANDELA	LUMENS
0	277	
5	276	26
15	268	76
25	250	115
35	225	141
45	191	147
55	152	136
65	110	109
75	68	72
85	35	39
90	23	
95	14	16
105	5	6
115	5	5
125	6	5
135	6	5
145	7	4
155	7	3
165	8	2
175	6	1
180	6	

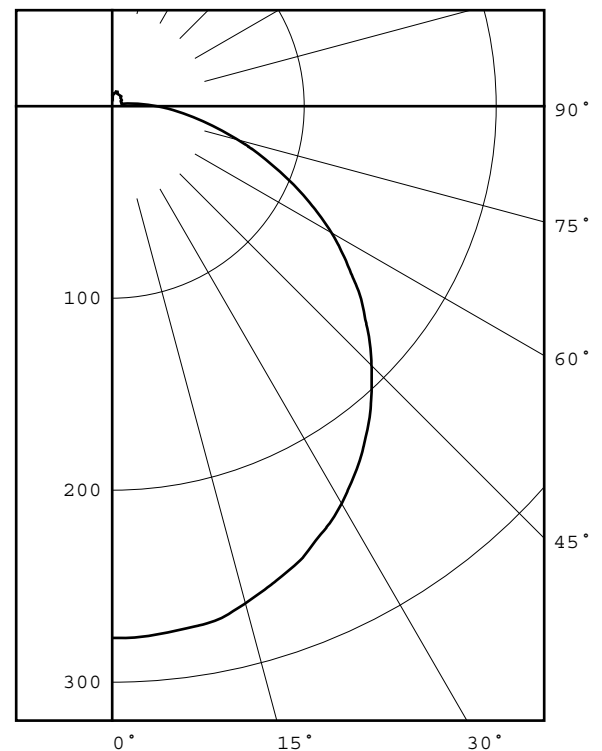
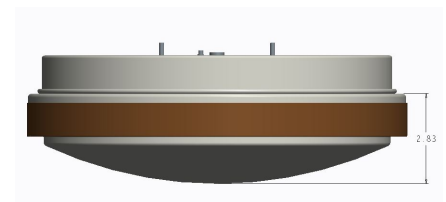
ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	217	23.9
0- 40	358	39.4
0- 60	642	70.6
0- 90	862	94.8
90-120	27	3.0
90-130	32	3.5
90-150	41	4.6
90-180	48	5.2
0-180	909	100.0

TOTAL INPUT WATTS = 11.8

EFFICACY = 77.0 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 1.3



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: 11.060  
HEIGHT OF SIDE : 2.830

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	3286.
55	2917.
65	2471.
75	1912.
85	1371.

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CANDELA DISTRIBUTION

	0.0
0.0	277
5.0	276
10.0	274
15.0	268
20.0	260
25.0	250
30.0	239
35.0	225
40.0	209
45.0	191
50.0	172
55.0	152
60.0	132
65.0	110
70.0	88
75.0	68
80.0	50
85.0	35
90.0	23
95.0	14
100.0	8
105.0	5
110.0	5
115.0	5
120.0	5
125.0	6
130.0	6
135.0	6
140.0	7
145.0	7
150.0	7
155.0	7
160.0	8
165.0	8
170.0	7
175.0	6
180.0	6

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ZONAL LUMEN SUMMARY

0- 5	7.
5- 10	20.
10- 15	32.
15- 20	43.
20- 25	54.
25- 30	62.
30- 35	68.
35- 40	72.
40- 45	74.
45- 50	73.
50- 55	71.
55- 60	66.
60- 65	59.
65- 70	50.
70- 75	41.
75- 80	31.
80- 85	23.
85- 90	16.
90- 95	10.
95-100	6.
100-105	3.
105-110	3.
110-115	3.
115-120	2.
120-125	3.
125-130	3.
130-135	2.
135-140	2.
140-145	2.
145-150	2.
150-155	2.
155-160	2.
160-165	1.
165-170	1.
170-175	0.
175-180	0.

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## 5-DEGREE ZONAL LUMEN SUMMARY

0- 5	7
5- 10	20
10- 15	32
15- 20	43
20- 25	54
25- 30	62
30- 35	68
35- 40	72
40- 45	74
45- 50	73
50- 55	71
55- 60	66
60- 65	59
65- 70	50
70- 75	41
75- 80	31
80- 85	23
85- 90	16
90- 95	10
95-100	6
100-105	3
105-110	3
110-115	3
115-120	2
120-125	3
125-130	3
130-135	2
135-140	2
140-145	2
145-150	2
150-155	2
155-160	2
160-165	1
165-170	1
170-175	0
175-180	0

## 10-DEGREE ZONAL LUMEN SUMMARY

0- 10	26
0- 20	102
0- 30	217
0- 40	358
0- 50	506
0- 60	642
0- 70	751
0- 80	823
0- 90	862
0-100	878
0-110	884
0-120	888
0-130	894
0-140	899
0-150	903
0-160	906
0-170	909
0-180	909

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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	77	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<sub>a</sub>,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	0.4575
Chromaticity Ordinate y	0.4063
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2629
Chromaticity Ordinate v'	0.5253
Correlated Color Temp CCT (K)	2700
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)	81
Color Rendering Index 5 (Light bluish green)	86
Color Rendering Index 6 (Light blue)	96
Color Rendering Index 7 (Light violet)	80
Color Rendering Index 8 (Light reddish purple)	60
Color Rendering Index 9 (Strong red)	18
Color Rendering Index 10 (Strong yellow)	92
Color Rendering Index 11 (Strong green)	81
Color Rendering Index 12 (Strong blue)	80
Color Rendering Index 13 (Light yellowish pink (skin))	88
Color Rendering Index 14 (Moderate olive green (leaf))	96
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	2900 *
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:

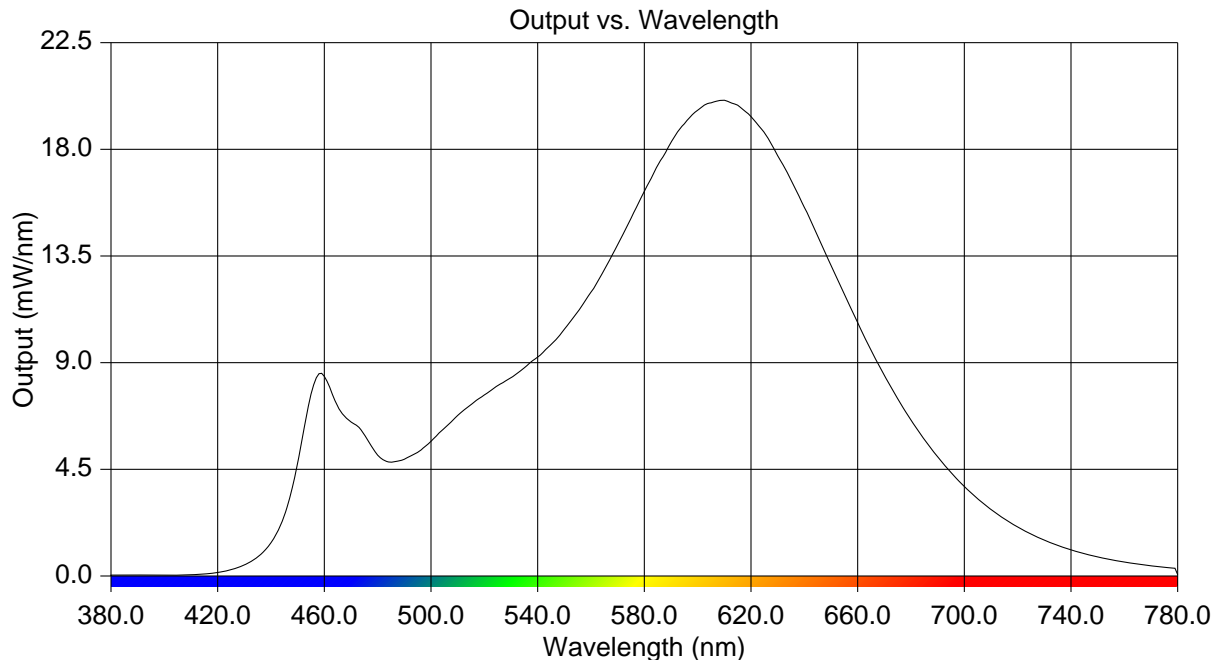
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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.

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### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.037	515	7.228	650	13.096
385	0.039	520	7.638	655	11.887
390	0.037	525	8.029	660	10.690
395	0.037	530	8.368	665	9.530
400	0.034	535	8.783	670	8.454
405	0.037	540	9.235	675	7.493
410	0.051	545	9.759	680	6.584
415	0.081	550	10.410	685	5.761
420	0.149	555	11.144	690	5.021
425	0.267	560	11.976	695	4.367
430	0.467	565	12.920	700	3.777
435	0.805	570	13.977	705	3.264
440	1.404	575	15.087	710	2.814
445	2.549	580	16.228	715	2.412
450	4.771	585	17.330	720	2.065
455	7.671	590	18.291	725	1.764
460	8.421	595	19.075	730	1.510
465	7.166	600	19.658	735	1.288
470	6.495	605	19.960	740	1.103
475	5.957	610	20.069	745	0.940
480	5.097	615	19.863	750	0.806
485	4.801	620	19.381	755	0.688
490	4.925	625	18.711	760	0.590
495	5.212	630	17.732	765	0.503
500	5.682	635	16.703	770	0.429
505	6.223	640	15.552	775	0.368
510	6.773	645	14.342	780	0.055



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### CIE Chromaticity Diagram

