

REPORT NUMBER: ITL83097

PAGE: 1 OF 6

ISSUE DATE: 10/06/14

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: SK9RYN (ROUND - SURFACE MOUNT)

LUMINAIRE: CAST FINNED METAL HOUSING WITH WHITE PAINTED INTERIOR FINISH, 1 WHITE CIRCUIT BOARD WITH 42 LEDS, FROSTED HOLOGRAPHIC PLASTIC DROP LENS. LENS FROSTED BOTH SIDES.

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

INPUT ELECTRICAL: 120.0 VOLTS, 9.06 WATTS, 0.0764 AMPS

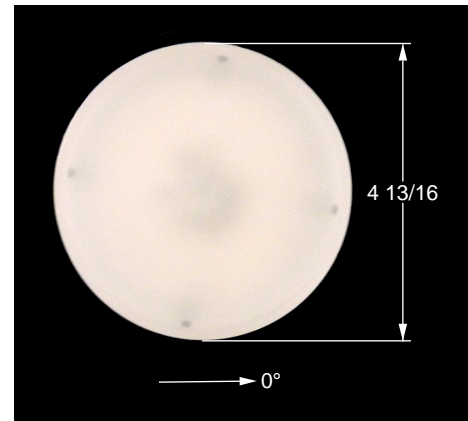
MOUNTING: SURFACE

LED DRIVER: INTEGRAL

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE LED ASSEMBLY.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET



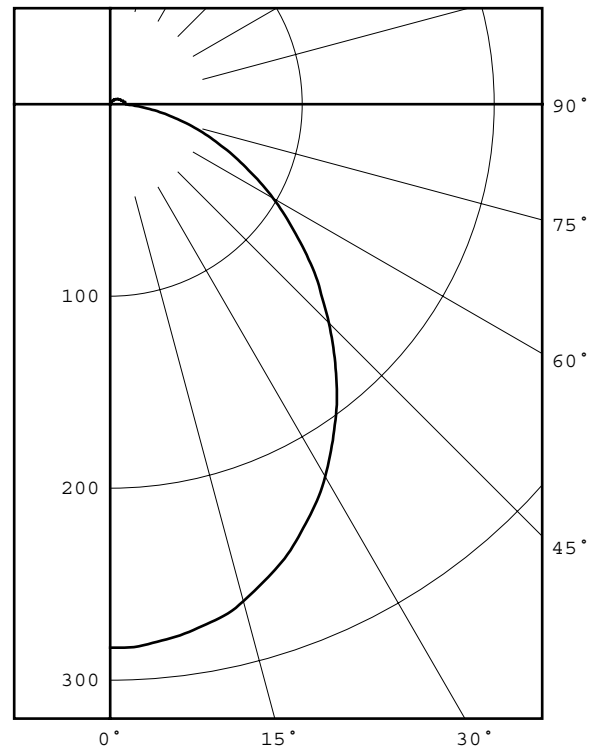
DEG	CANDELA	LUMENS
0	283	
5	281	27
15	268	75
25	241	111
35	204	128
45	161	124
55	118	106
65	78	78
75	44	47
85	16	18
90	8	
95	8	9
105	7	7
115	6	6
125	5	4
135	3	3
145	2	2
155	1	1
165	0	0
175	0	0
180	0	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	213	28.7
0- 40	341	45.8
0- 60	571	76.8
0- 90	714	96.0
90-120	21	2.9
90-130	25	3.4
90-150	29	4.0
90-180	30	4.0
0-180	744	100.0

EFFICACY = 82.1 lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 1.18



Checked B. HYRE
Approved N. WHITE
Lighting Engineer



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LUMINOUS DIAMETER: 4.813
HEIGHT OF SIDE : 0.250

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	18198.
55	16017.
65	13773.
75	11618.
85	8908.



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CANDELA DISTRIBUTION

0.0	283
5.0	281
10.0	276
15.0	268
20.0	256
25.0	241
30.0	224
35.0	204
40.0	183
45.0	161
50.0	140
55.0	118
60.0	98
65.0	78
70.0	60
75.0	44
80.0	29
85.0	16
90.0	8
95.0	8
100.0	7
105.0	7
110.0	6
115.0	6
120.0	5
125.0	5
130.0	4
135.0	3
140.0	3
145.0	2
150.0	2
155.0	1
160.0	1
165.0	0
170.0	0
175.0	0
180.0	0



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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	7
5- 10	20
10- 15	32
15- 20	43
20- 25	52
25- 30	59
30- 35	63
35- 40	65
40- 45	64
45- 50	61
50- 55	56
55- 60	50
60- 65	43
65- 70	35
70- 75	27
75- 80	19
80- 85	12
85- 90	6
90- 95	4
95-100	4
100-105	4
105-110	3
110-115	3
115-120	3
120-125	2
125-130	2
130-135	2
135-140	1
140-145	1
145-150	1
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	27
0- 20	102
0- 30	213
0- 40	341
0- 50	465
0- 60	571
0- 70	649
0- 80	695
0- 90	714
0-100	722
0-110	729
0-120	735
0-130	739
0-140	742
0-150	743
0-160	744
0-170	744
0-180	744



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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	115	115	115	115	109	109	109	103	103	103	98	98	98	96
1	108	103	99	95	105	100	97	93	95	92	89	91	88	86	87	85	83	80
2	98	90	84	78	95	88	82	77	84	79	74	80	76	72	76	73	70	67
3	90	80	72	65	87	78	70	64	74	68	63	71	66	61	68	63	60	57
4	82	71	62	56	80	69	61	55	66	59	54	63	57	53	61	56	52	49
5	76	63	55	48	74	62	54	48	60	52	47	57	51	46	55	49	45	43
6	70	57	49	42	68	56	48	42	54	47	41	52	45	41	50	44	40	38
7	65	52	43	37	63	51	43	37	49	42	37	47	41	36	46	40	36	34
8	61	48	39	34	59	47	39	33	45	38	33	44	37	32	42	36	32	30
9	57	44	36	30	55	43	35	30	42	35	30	40	34	29	39	33	29	27
10	53	40	33	28	52	40	32	27	39	32	27	37	31	27	36	31	26	25

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 TEST SAMPLE.



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ADDRESS: 170 LUDLOW AVE
NORTHVALE, NJ 07647

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REPORT NUMBER: ITL83103
DATE: 10/08/14
PREPARED FOR: RAB LIGHTING, INC.
CATALOG NUMBER: SK9RYN (ROUND - SURFACE MOUNT)

ADDRESS: 170 LUDLOW AVE
NORTHVALE, NJ 07647

LUMINAIRE: CAST FINNED METAL HOUSING WITH WHITE PAINTED INTERIOR FINISH, 1
WHITE CIRCUIT BOARD WITH 42 LEDS, FROSTED HOLOGRAPHIC PLASTIC DROP
LENS. LENS FROSTED BOTH SIDES.

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

DRIVER: INTEGRAL

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT
VOLTAGE (120.0 VAC, 60Hz) TO THE LED ASSEMBLY.

INSTRUMENTS:	Associated Power Technologies APT5010 AC Power Source	Calibration Due: N/A
	Yokogawa WT210 Digital Power Meter #6	10/31/14
	Ocean Optics QE65000 Spectroradiometer	07/14/15
	ITL 1.5m Diameter Integrating Sphere S15-2, 4PI Geometry	07/14/15

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, Scotopic /
Photopic Ratio, and electrical data including ANSI C82.77-2002 Power
Factor (PF) and Total Harmonic Distortion (THD) to the test sample.
Report Off-State Power.

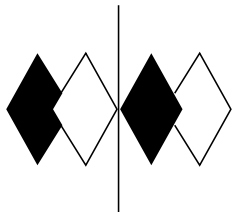
PROCEDURE: The test sample was provided by the customer and had an unknown number
of operating hours. The test sample was mounted inside the integrating
sphere and allowed to stabilize. After stabilization occurred,
measurements were taken. In order to measure mean performance, multiple
data sets were recorded and averaged. Readings were taken with the test
sample operating at 120.0 VAC input. All testing performed 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)

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PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE
FEDERAL GOVERNMENT.

Checked	<i>N THOMAS</i>
Approved	<i>P O'CONNOR</i> Sphere Lab Supervisor



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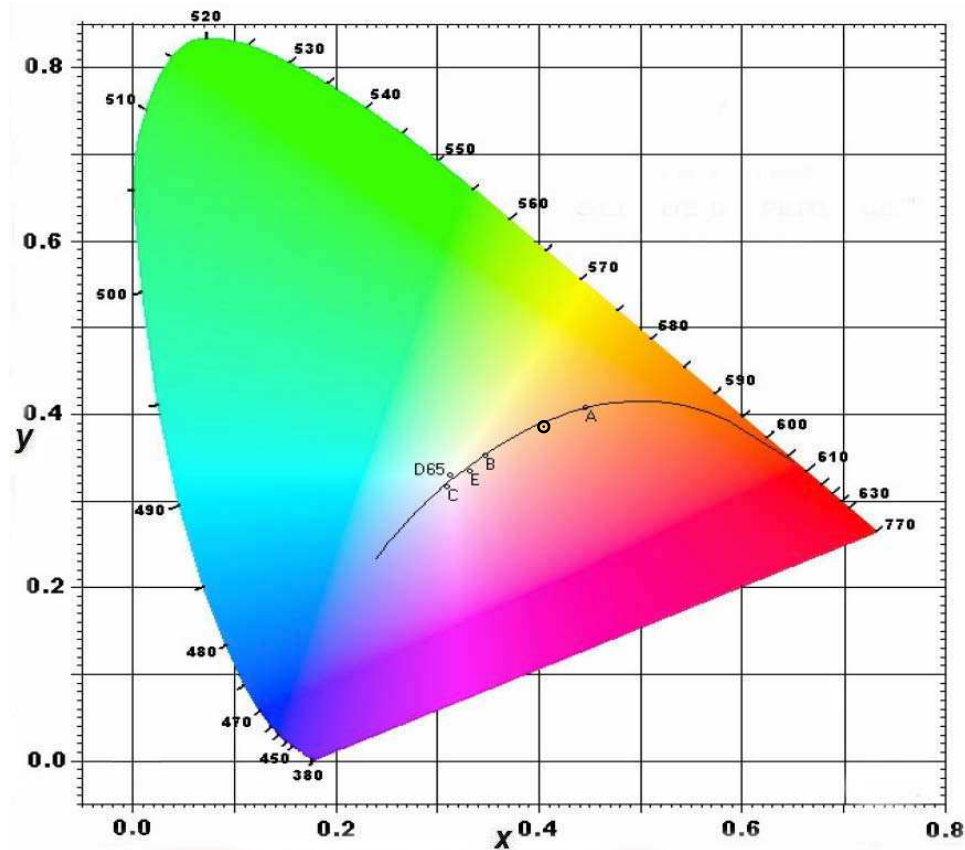
NVLAP
NVLAP LAB CODE: 200925-0

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CIE Chromaticity Diagram





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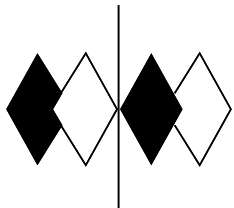
RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4046
Chromaticity Ordinate y	0.3853
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2375
Chromaticity Ordinate v'	0.5089
Correlated Color Temp CCT (K)	3470
ANSI C78.377-2008 Duv	-0.002
Scotopic / Photopic Lumen Ratio	1.647
Total Radiant Flux (milliWatts)	2385 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.076
Input Power (Watts)	9.06
Input Power Factor (%)	99.3
Input Current THD (%)	13.9
Input Voltage THD (%)	0.1
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	87
R1 Light greyish red	86
R2 Dark greyish yellow	95
R3 Strong yellowish green	95
R4 Moderate yellowish green	84
R5 Light bluish green	87
R6 Light blue	93
R7 Light violet	85
R8 Light reddish purple	68
R9 Strong red	28
R10 Strong yellow	88
R11 Strong green	83
R12 Strong blue	74
R13 Light yellowish pink (skin)	89
R14 Moderate olive green (leaf)	98

*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	0.057	515	7.213	650	8.631
385	0.057	520	7.525	655	7.886
390	0.061	525	7.827	660	7.150
395	0.068	530	8.131	665	6.429
400	0.080	535	8.473	670	5.743
405	0.127	540	8.849	675	5.097
410	0.183	545	9.268	680	4.509
415	0.298	550	9.711	685	3.981
420	0.505	555	10.169	690	3.518
425	0.832	560	10.638	695	3.097
430	1.330	565	11.122	700	2.715
435	2.101	570	11.604	705	2.378
440	3.293	575	12.067	710	2.073
445	5.448	580	12.525	715	1.805
450	8.868	585	12.969	720	1.575
455	11.216	590	13.344	725	1.373
460	9.828	595	13.655	730	1.202
465	7.751	600	13.801	735	1.048
470	6.731	605	13.832	740	0.914
475	5.682	610	13.706	745	0.796
480	4.934	615	13.388	750	0.695
485	4.900	620	12.912	755	0.606
490	5.172	625	12.299	760	0.531
495	5.546	630	11.613	765	0.467
500	6.016	635	10.889	770	0.410
505	6.488	640	10.139	775	0.360
510	6.873	645	9.388	780	0.317

