

REPORT NUMBER: ITL83095

PAGE: 1 OF 6

ISSUE DATE: 10/02/14

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: SK9RYY (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, 9.09 WATTS, 0.0766 AMPS

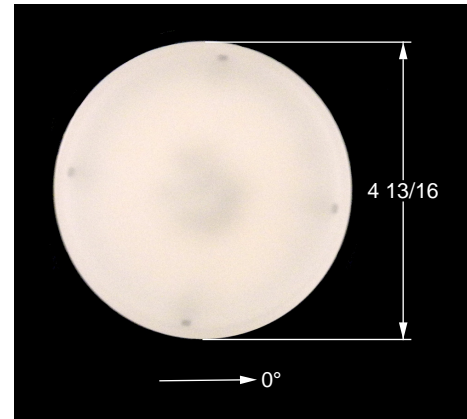
MOUNTING: SURFACE

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



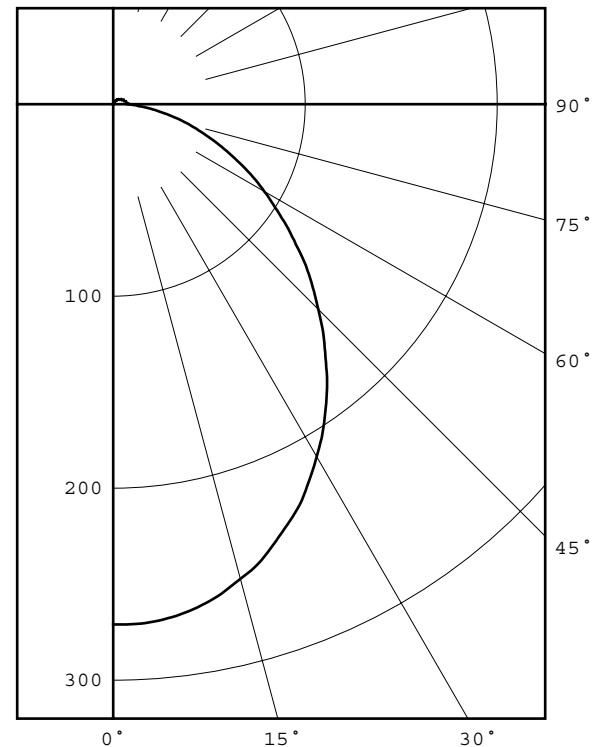
DEG	CANDELA	LUMENS
0	271	
5	270	26
15	256	72
25	230	106
35	193	121
45	151	117
55	110	99
65	73	72
75	41	43
85	15	18
90	8	
95	7	8
105	6	7
115	5	5
125	4	4
135	3	3
145	2	2
155	1	1
165	0	0
175	0	0
180	0	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	203	29.0
0- 40	324	46.2
0- 60	539	76.9
0- 90	673	95.9
90-120	20	2.9
90-130	24	3.4
90-150	28	4.0
90-180	29	4.1
0-180	701	100.0

EFFICACY = 77.1 lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 1.17



Checked B. HYRE  
Approved N. WHITE  
Lighting Engineer



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PAGE: 2 OF 6

LUMINOUS DIAMETER: 4.813  
HEIGHT OF SIDE : 0.250

LUMINANCE DATA IN CANDELA/SQ M  
ANGLE AVERAGE  
IN DEG

45	17068.
55	14931.
65	12890.
75	10826.
85	8352.



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PAGE: 3 OF 6

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#### CANDELA DISTRIBUTION

0.0	271
5.0	270
10.0	265
15.0	256
20.0	244
25.0	230
30.0	212
35.0	193
40.0	172
45.0	151
50.0	131
55.0	110
60.0	91
65.0	73
70.0	56
75.0	41
80.0	27
85.0	15
90.0	8
95.0	7
100.0	7
105.0	6
110.0	6
115.0	5
120.0	5
125.0	4
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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PAGE: 4 OF 6

5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	6
5- 10	19
10- 15	31
15- 20	41
20- 25	50
25- 30	56
30- 35	60
35- 40	61
40- 45	60
45- 50	57
50- 55	52
55- 60	46
60- 65	40
65- 70	33
70- 75	25
75- 80	18
80- 85	11
85- 90	6
90- 95	4
95-100	4
100-105	4
105-110	3
110-115	3
115-120	2
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	26
0- 20	98
0- 30	203
0- 40	324
0- 50	441
0- 60	539
0- 70	612
0- 80	655
0- 90	673
0-100	681
0-110	687
0-120	693
0-130	697
0-140	699
0-150	701
0-160	701
0-170	701
0-180	701



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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	68
3	90	80	72	65	87	78	70	65	74	68	63	71	66	61	68	64	60	57
4	83	71	62	56	80	69	61	55	66	59	54	64	58	53	61	56	52	49
5	76	64	55	48	74	62	54	48	60	53	47	57	51	46	55	50	45	43
6	70	57	49	42	68	56	48	42	54	47	41	52	46	41	50	44	40	38
7	65	52	44	38	63	51	43	37	49	42	37	48	41	36	46	40	36	34
8	61	48	39	34	59	47	39	34	45	38	33	44	37	33	42	37	32	30
9	57	44	36	30	55	43	36	30	42	35	30	40	34	30	39	33	29	27
10	54	41	33	28	52	40	33	28	39	32	27	38	31	27	36	31	27	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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PAGE: 6 OF 6

ADDRESS: 170 LUDLOW AVE  
NORTHVALE, NJ 07647

INSTRUMENTS:

Kikusui PCR4000LA AC Power Source	Calibration Due:
Yokogawa WT210 Digital Power Meter #5	N/A
ITL Moving Mirror Goniophotometer - 20.0' Test Distance	02/28/15
	05/13/15

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Page 1 of 4

REPORT NUMBER: ITL83101  
DATE: 10/07/14  
PREPARED FOR: RAB LIGHTING, INC.  
CATALOG NUMBER: SK9RYY (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<sub>a</sub>,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.

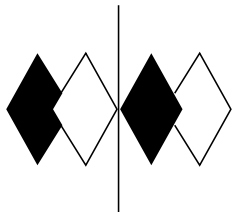
PROCEDURE: The test sample was provided by the customer and had an unknown number  
of operating hours. The test sample was mounted inside the integrating  
sphere and allowed to stabilize. After stabilization occurred,  
measurements were taken. In order to measure mean performance, multiple  
data 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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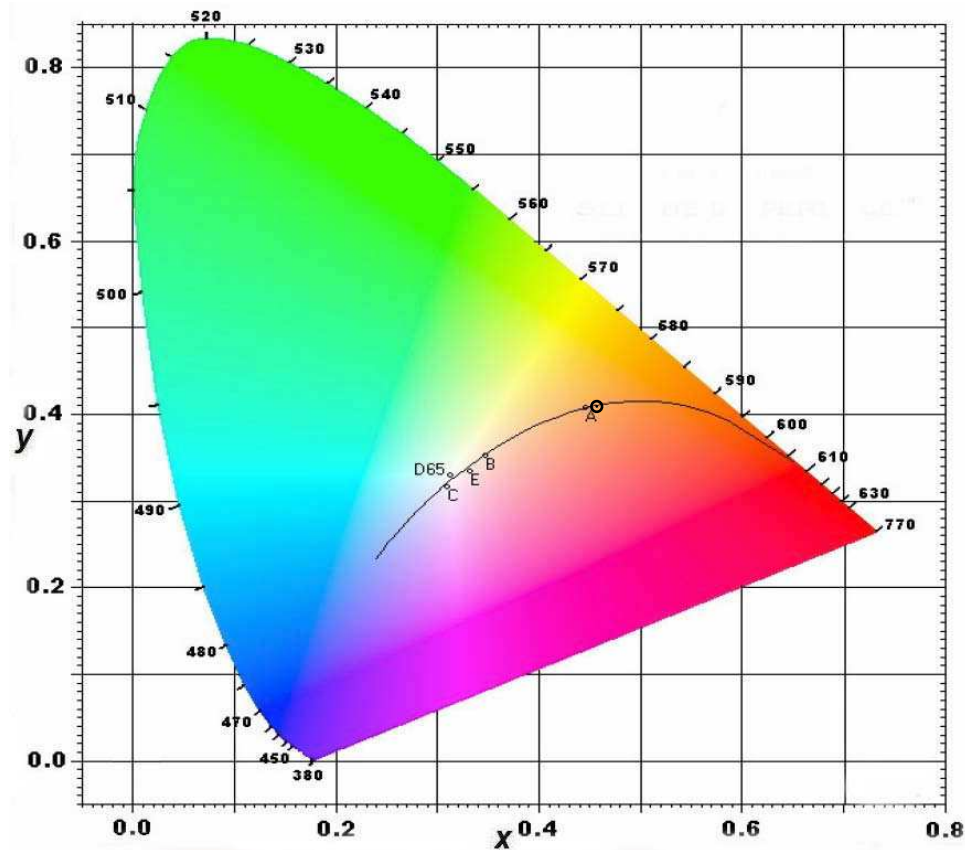
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NVLAP LAB CODE: 200925-0

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Page 4 of 4

## CIE Chromaticity Diagram







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Page 2 of 4

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DATE: 10/07/14  
PREPARED FOR: RAB LIGHTING, INC.  
CATALOG NUMBER: SK9RYR (ROUND - SURFACE MOUNT)

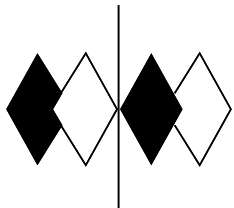
# RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4568
Chromaticity Ordinate y	0.4086
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2614
Chromaticity Ordinate v'	0.5261
Correlated Color Temp CCT (K)	2727
ANSI C78.377-2008 Duv	0.000
Scotopic / Photopic Lumen Ratio	1.291
Total Radiant Flux (milliWatts)	2246 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.077
Input Power (Watts)	9.11
Input Power Factor (%)	98.6
Input Current THD (%)	14.0
Input Voltage THD (%)	0.1
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	84
R1 Light greyish red	83
R2 Dark greyish yellow	92
R3 Strong yellowish green	97
R4 Moderate yellowish green	83
R5 Light bluish green	84
R6 Light blue	92
R7 Light violet	83
R8 Light reddish purple	62
R9 Strong red	17
R10 Strong yellow	82
R11 Strong green	82
R12 Strong blue	75
R13 Light yellowish pink (skin)	85
R14 Moderate olive green (leaf)	99

## \*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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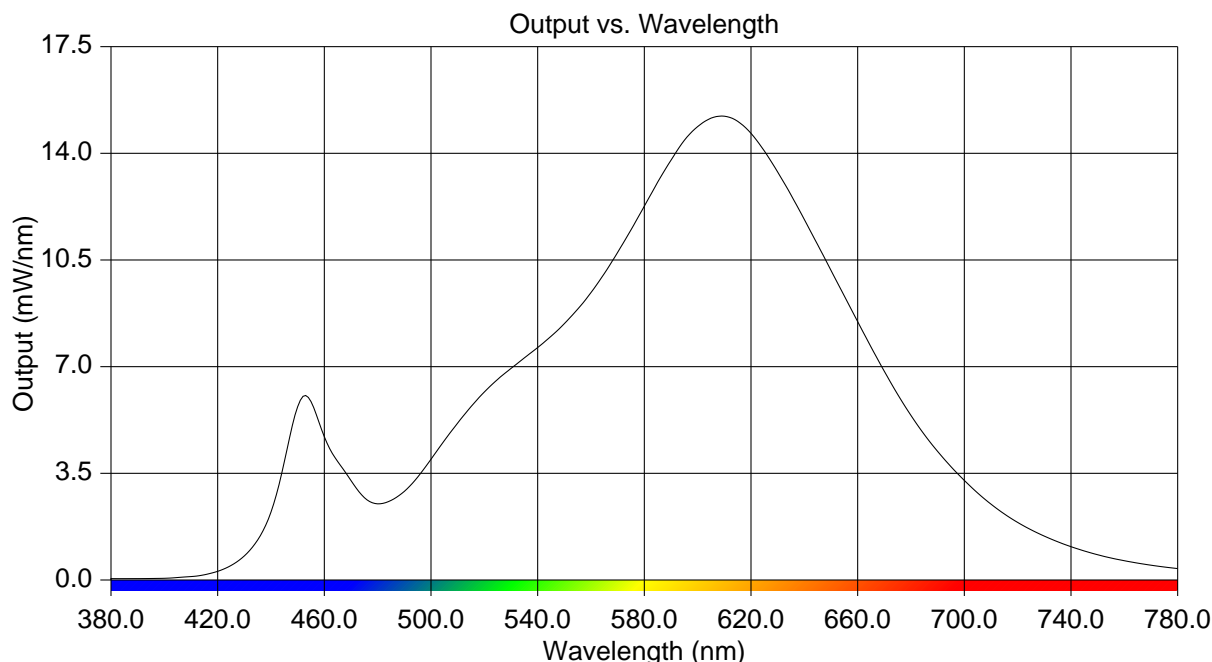
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Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.045	515	5.688	650	10.159
385	0.044	520	6.169	655	9.319
390	0.045	525	6.583	660	8.478
395	0.049	530	6.942	665	7.647
400	0.055	535	7.288	670	6.848
405	0.082	540	7.628	675	6.090
410	0.113	545	7.996	680	5.398
415	0.171	550	8.411	685	4.772
420	0.284	555	8.886	690	4.218
425	0.476	560	9.432	695	3.717
430	0.790	565	10.056	700	3.267
435	1.312	570	10.751	705	2.854
440	2.230	575	11.489	710	2.489
445	3.883	580	12.267	715	2.168
450	5.686	585	13.055	720	1.889
455	5.855	590	13.774	725	1.649
460	4.700	595	14.427	730	1.440
465	3.888	600	14.878	735	1.255
470	3.263	605	15.155	740	1.093
475	2.703	610	15.218	745	0.952
480	2.498	615	15.051	750	0.829
485	2.610	620	14.657	755	0.722
490	2.907	625	14.079	760	0.633
495	3.376	630	13.387	765	0.554
500	3.962	635	12.635	770	0.486
505	4.574	640	11.829	775	0.426
510	5.149	645	11.002	780	0.375





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Page: 1 of 10

REPORT NUMBER: ITL83107  
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PREPARED FOR: RAB LIGHTING, INC.  
CATALOG NUMBER: SK9RYY (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.

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

LED DRIVER: INTEGRAL

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

TEST DISTANCE: 4.0 FEET

INSTRUMENTATION: ITL Moving Mirror Gonio-Colorimeter  
Kikusui PCR4000LA AC Power Source  
Yokogawa WT210 Digital Power Meter

Calibration Due:  
10/18/14  
N/A  
02/28/15

OBJECT OF TEST: Measure the Color Spatial Uniformity and Electrical Data to the  
luminaire in accordance with IESNA LM-79-08.

RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Averaged Chromaticity Ordinate (x)	0.4580
Averaged Chromaticity Ordinate (y)	0.4101
Observer	CIE 1976 2 degree
Averaged Chromaticity Ordinate (u')	0.2615
Averaged Chromaticity Ordinate (v')	0.5269
Correlated Color Temp CCT (K)	2722 *
ELECTRICAL	
Input Power (Watts)	9.09

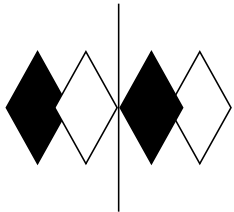
\*NOTE: The candela values provided are calculated from the Y photocell  
of the color sensor, and are solely for relative measurement in  
relation to a precision fl' photocell. Average Color Temperature  
is averaged from intensities above 10% maximum on only two planes  
of data taken.

Legend of angular measurements on subsequent pages

[!] Measurement Angle Exceeds Delta u'v' distance of 0.004 from  
Weighted Average

[+] Angular Intensity is not reported below 10% of maximum intensity

Checked ..... *N THOMAS*  
Approved ..... *R BERGIN*  
Lighting Engineer



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NVLAP LAB CODE: 200925-0

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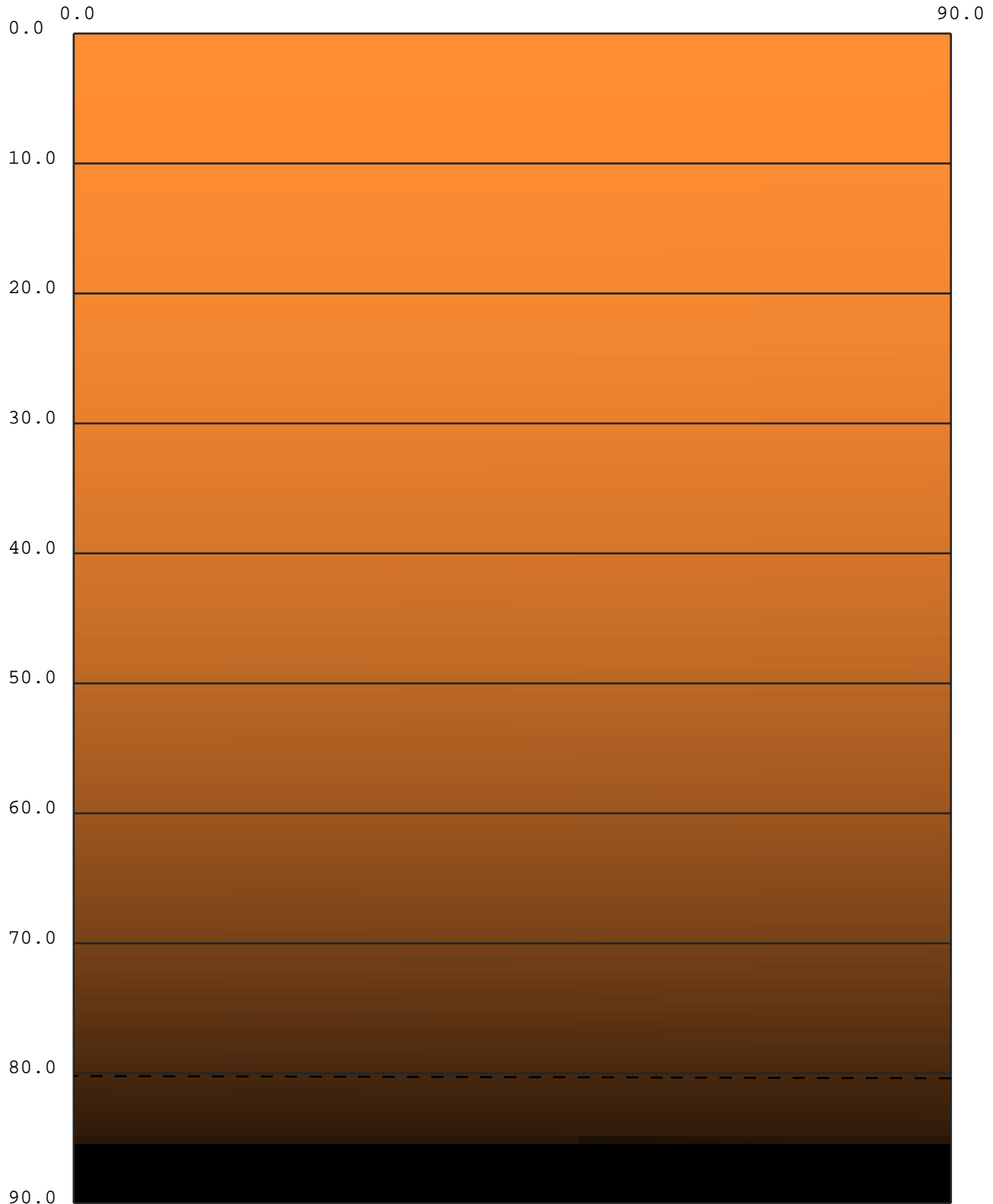
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CATALOG NUMBER:

SK9RYY (ROUND - SURFACE MOUNT)

Page: 2 of 10





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Page: 3 of 10

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10/10/14

PREPARED FOR:

RAB LIGHTING, INC.

CATALOG NUMBER:

SK9RY (ROUND - SURFACE MOUNT)

Candela Value (cd)

!=Over Delta u'v' +=Below 10%

u'

v'

CCT (Kelvin)

Delta u'v'

RESULTS:

0.0

90.0

0.0	262.6 0.2614 0.5269 2724K 0.0001	262.6 0.2614 0.5269 2724K 0.0001
1.0	262.4 0.2614 0.5269 2725K 0.0001	262.5 0.2614 0.5269 2725K 0.0001
2.0	262.2 0.2614 0.5269 2725K 0.0001	262.3 0.2614 0.5269 2725K 0.0001
3.0	261.9 0.2614 0.5269 2725K 0.0001	262.1 0.2614 0.5269 2725K 0.0001
4.0	261.5 0.2614 0.5269 2725K 0.0001	261.6 0.2614 0.5269 2724K 0.0001
5.0	261.0 0.2614 0.5268 2725K 0.0001	261.1 0.2614 0.5269 2724K 0.0001
6.0	260.4 0.2613 0.5269 2726K 0.0001	260.5 0.2614 0.5268 2724K 0.0001
7.0	259.6 0.2613 0.5269 2726K 0.0001	259.7 0.2614 0.5268 2724K 0.0001
8.0	258.7 0.2614 0.5269 2725K 0.0001	258.8 0.2615 0.5268 2723K 0.0001
9.0	257.6 0.2614 0.5269 2725K 0.0001	257.7 0.2615 0.5269 2723K 0.0000
10.0	256.5 0.2614 0.5269 2725K 0.0001	256.6 0.2615 0.5269 2723K 0.0000
11.0	255.2 0.2614 0.5269 2725K 0.0001	255.3 0.2615 0.5269 2723K 0.0000
12.0	253.7 0.2614 0.5269 2725K 0.0001	253.9 0.2615 0.5269 2723K 0.0000
13.0	252.2 0.2614 0.5269 2725K 0.0001	252.4 0.2615 0.5269 2723K 0.0000
14.0	250.5 0.2614 0.5269 2724K 0.0001	250.7 0.2615 0.5269 2722K 0.0000



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REPORT NUMBER:

ITL83107

Page: 4 of 10

DATE:

10/10/14

PREPARED FOR:

RAB LIGHTING, INC.

CATALOG NUMBER:

SK9RY (ROUND - SURFACE MOUNT)

Candela Value (cd)

!=Over Delta u'v' +=Below 10%

u'

v'

CCT (Kelvin)

Delta u'v'

RESULTS:

0.0

90.0

15.0	248.7 0.2614 0.5269 2724K 0.0001	248.8 0.2615 0.5269 2722K 0.0000
16.0	246.8 0.2614 0.5269 2723K 0.0001	246.9 0.2615 0.5269 2721K 0.0001
17.0	244.8 0.2614 0.5270 2723K 0.0001	244.8 0.2616 0.5269 2721K 0.0001
18.0	242.7 0.2614 0.5270 2723K 0.0001	242.6 0.2616 0.5269 2720K 0.0001
19.0	240.5 0.2615 0.5270 2722K 0.0001	240.3 0.2616 0.5270 2720K 0.0001
20.0	238.2 0.2615 0.5270 2722K 0.0001	237.9 0.2616 0.5269 2720K 0.0001
21.0	235.8 0.2615 0.5270 2722K 0.0001	235.4 0.2616 0.5269 2721K 0.0001
22.0	233.2 0.2615 0.5269 2722K 0.0001	232.8 0.2615 0.5269 2722K 0.0001
23.0	230.5 0.2615 0.5269 2722K 0.0000	230.1 0.2615 0.5269 2722K 0.0000
24.0	227.6 0.2615 0.5269 2722K 0.0000	227.3 0.2615 0.5269 2722K 0.0000
25.0	224.7 0.2615 0.5269 2721K 0.0001	224.3 0.2615 0.5269 2723K 0.0000
26.0	221.7 0.2615 0.5269 2721K 0.0001	221.3 0.2615 0.5269 2723K 0.0000
27.0	218.6 0.2616 0.5269 2721K 0.0001	218.3 0.2615 0.5269 2723K 0.0000
28.0	215.4 0.2616 0.5269 2721K 0.0001	215.1 0.2615 0.5269 2722K 0.0000
29.0	212.1 0.2615 0.5269 2721K 0.0001	211.8 0.2616 0.5269 2721K 0.0001



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REPORT NUMBER:

ITL83107

Page: 5 of 10

DATE:

10/10/14

PREPARED FOR:

RAB LIGHTING, INC.

CATALOG NUMBER:

SK9RYY (ROUND - SURFACE MOUNT)

Candela Value (cd)

!=Over Delta u'v' +=Below 10%

u'

v'

CCT (Kelvin)

Delta u'v'

RESULTS:

0.0

90.0

30.0	208.8 0.2615 0.5270 2721K 0.0001	208.4 0.2616 0.5269 2720K 0.0001
31.0	205.4 0.2615 0.5270 2722K 0.0001	204.9 0.2616 0.5270 2719K 0.0001
32.0	201.8 0.2615 0.5270 2721K 0.0001	201.3 0.2616 0.5270 2719K 0.0002
33.0	198.3 0.2615 0.5270 2721K 0.0001	197.8 0.2616 0.5270 2719K 0.0002
34.0	194.6 0.2615 0.5270 2721K 0.0001	194.2 0.2617 0.5270 2718K 0.0002
35.0	190.8 0.2616 0.5270 2720K 0.0001	190.6 0.2616 0.5271 2719K 0.0002
36.0	187.1 0.2616 0.5270 2720K 0.0002	186.8 0.2616 0.5271 2720K 0.0002
37.0	183.3 0.2616 0.5270 2719K 0.0002	183.0 0.2615 0.5271 2721K 0.0002
38.0	179.4 0.2616 0.5271 2719K 0.0002	179.1 0.2615 0.5271 2720K 0.0002
39.0	175.6 0.2616 0.5271 2719K 0.0002	175.1 0.2615 0.5271 2721K 0.0002
40.0	171.7 0.2617 0.5271 2718K 0.0002	171.1 0.2616 0.5271 2720K 0.0002
41.0	167.7 0.2617 0.5271 2718K 0.0003	167.1 0.2616 0.5271 2720K 0.0002
42.0	163.7 0.2616 0.5271 2718K 0.0002	163.1 0.2616 0.5271 2720K 0.0002
43.0	159.5 0.2616 0.5271 2720K 0.0002	159.0 0.2616 0.5271 2720K 0.0002
44.0	155.4 0.2616 0.5271 2720K 0.0002	155.0 0.2616 0.5271 2720K 0.0002



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REPORT NUMBER:

ITL83107

Page: 6 of 10

DATE:

10/10/14

PREPARED FOR:

RAB LIGHTING, INC.

CATALOG NUMBER:

SK9RY (ROUND - SURFACE MOUNT)

Candela Value (cd)

!=Over Delta u'v' +=Below 10%

u'

v'

CCT (Kelvin)

Delta u'v'

RESULTS:

0.0

90.0

45.0	151.3 0.2615 0.5271 2721K 0.0002	150.9 0.2616 0.5270 2720K 0.0002
46.0	147.2 0.2615 0.5271 2722K 0.0002	146.8 0.2616 0.5270 2721K 0.0001
47.0	143.1 0.2615 0.5271 2722K 0.0002	142.8 0.2615 0.5270 2721K 0.0001
48.0	138.9 0.2614 0.5270 2723K 0.0002	138.8 0.2616 0.5270 2720K 0.0001
49.0	134.8 0.2614 0.5270 2723K 0.0001	134.7 0.2616 0.5270 2720K 0.0001
50.0	130.8 0.2615 0.5270 2722K 0.0001	130.6 0.2616 0.5270 2719K 0.0001
51.0	126.7 0.2615 0.5270 2721K 0.0001	126.5 0.2617 0.5270 2718K 0.0002
52.0	122.7 0.2616 0.5269 2720K 0.0001	122.4 0.2617 0.5269 2718K 0.0002
53.0	118.7 0.2617 0.5269 2719K 0.0002	118.3 0.2617 0.5269 2717K 0.0002
54.0	114.7 0.2617 0.5268 2718K 0.0002	114.3 0.2618 0.5269 2716K 0.0003
55.0	110.7 0.2617 0.5268 2718K 0.0003	110.3 0.2618 0.5269 2716K 0.0003
56.0	106.7 0.2617 0.5268 2718K 0.0003	106.4 0.2617 0.5268 2718K 0.0002
57.0	102.8 0.2618 0.5267 2717K 0.0003	102.6 0.2617 0.5268 2718K 0.0002
58.0	99.0 0.2617 0.5267 2718K 0.0003	98.7 0.2617 0.5268 2717K 0.0003
59.0	95.2 0.2617 0.5267 2719K 0.0003	94.9 0.2617 0.5267 2718K 0.0003





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REPORT NUMBER:

ITL83107

Page: 7 of 10

DATE:

10/10/14

PREPARED FOR:

RAB LIGHTING, INC.

CATALOG NUMBER:

SK9RYR (ROUND - SURFACE MOUNT)

Candela Value (cd)

!=Over Delta u'v' +=Below 10%

u'

v'

CCT (Kelvin)

Delta u'v'

RESULTS:

0.0

90.0

60.0	91.5 0.2617 0.5267 2719K 0.0003	91.2 0.2618 0.5267 2718K 0.0003
61.0	87.8 0.2616 0.5267 2720K 0.0002	87.5 0.2618 0.5267 2717K 0.0003
62.0	84.1 0.2615 0.5267 2722K 0.0002	83.9 0.2617 0.5267 2718K 0.0003
63.0	80.5 0.2614 0.5267 2725K 0.0002	80.3 0.2617 0.5267 2720K 0.0003
64.0	77.0 0.2613 0.5267 2727K 0.0003	76.8 0.2616 0.5266 2722K 0.0003
65.0	73.4 0.2612 0.5267 2729K 0.0003	73.4 0.2614 0.5266 2725K 0.0003
66.0	70.0 0.2611 0.5268 2731K 0.0004	70.0 0.2612 0.5266 2729K 0.0004
67.0	66.5 0.2610 0.5268 2732K 0.0005	66.6 0.2611 0.5267 2732K 0.0005
68.0	63.2 0.2610 0.5268 2734K 0.0005	63.3 0.2610 0.5267 2734K 0.0006
69.0	59.8 0.2609 0.5268 2734K 0.0006	60.1 0.2608 0.5267 2737K 0.0007
70.0	56.5 0.2609 0.5269 2736K 0.0006	56.8 0.2608 0.5267 2739K 0.0008
71.0	53.3 0.2609 0.5269 2735K 0.0006	53.5 0.2607 0.5267 2739K 0.0008
72.0	50.1 0.2609 0.5268 2735K 0.0006	50.3 0.2608 0.5267 2739K 0.0008
73.0	46.9 0.2610 0.5268 2734K 0.0005	47.2 0.2608 0.5266 2738K 0.0007
74.0	43.9 0.2610 0.5267 2733K 0.0005	44.2 0.2609 0.5266 2735K 0.0006



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REPORT NUMBER:

ITL83107

Page: 8 of 10

DATE:

10/10/14

PREPARED FOR:

RAB LIGHTING, INC.

CATALOG NUMBER:

SK9RY (ROUND - SURFACE MOUNT)

Candela Value (cd)

!=Over Delta u'v' +=Below 10%

u'

v'

CCT (Kelvin)

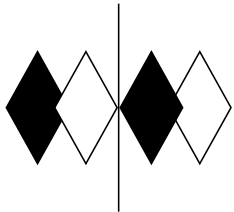
Delta u'v'

RESULTS:

0.0

90.0

75.0	40.9 0.2611 0.5266 2733K 0.0005	41.2 0.2610 0.5265 2734K 0.0006
76.0	37.9 0.2610 0.5265 2735K 0.0007	38.3 0.2609 0.5265 2736K 0.0007
77.0	35.1 0.2610 0.5263 2735K 0.0008	35.5 0.2610 0.5264 2735K 0.0007
78.0	32.3 0.2610 0.5263 2735K 0.0008	32.8 0.2609 0.5262 2737K 0.0009
79.0	29.7 0.2610 0.5263 2734K 0.0008	30.1 0.2610 0.5261 2737K 0.0010
80.0	26.8 0.2611 0.5263 2734K 0.0007	27.1 0.2609 0.5259 2738K 0.0011
81.0	24.4 + 0.2612 0.5264 2731K 0.0006	24.9 + 0.2610 0.5259 2736K 0.0011
82.0	22.4 + 0.2614 0.5266 2726K 0.0004	22.8 + 0.2612 0.5260 2733K 0.0009
83.0	20.3 + 0.2616 0.5267 2721K 0.0002	20.7 + 0.2613 0.5261 2729K 0.0008
84.0	18.1 + 0.2618 0.5269 2716K 0.0003	18.5 + 0.2615 0.5262 2725K 0.0007
85.0	15.7 + 0.2620 0.5271 2711K 0.0005	16.0 + 0.2616 0.5263 2722K 0.0006
86.0	N/A + 0.0000 0.0000 OK N/A	N/A + 0.0000 0.0000 OK N/A
87.0	N/A + 0.0000 0.0000 OK N/A	N/A + 0.0000 0.0000 OK N/A
88.0	N/A + 0.0000 0.0000 OK N/A	N/A + 0.0000 0.0000 OK N/A
89.0	N/A + 0.0000 0.0000 OK N/A	N/A + 0.0000 0.0000 OK N/A



NVLAP LAB CODE: 200925-0

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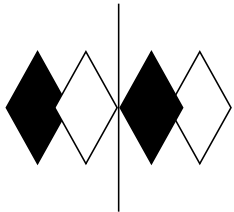
REPORT NUMBER: ITL83107  
DATE: 10/10/14

Page: 9 of 10

PREPARED FOR: RAB LIGHTING, INC.  
CATALOG NUMBER: SK9RYY (ROUND - SURFACE MOUNT)

RESULTS:		Candela Value (cd)	!=Over Delta u'v' +=Below 10%
		u'	v'
		CCT (Kelvin)	Delta u'v'
	0.0	90.0	

90.0	N/A	+	N/A	+
	0.0000	0.0000	0.0000	0.0000
	OK	N/A	OK	N/A



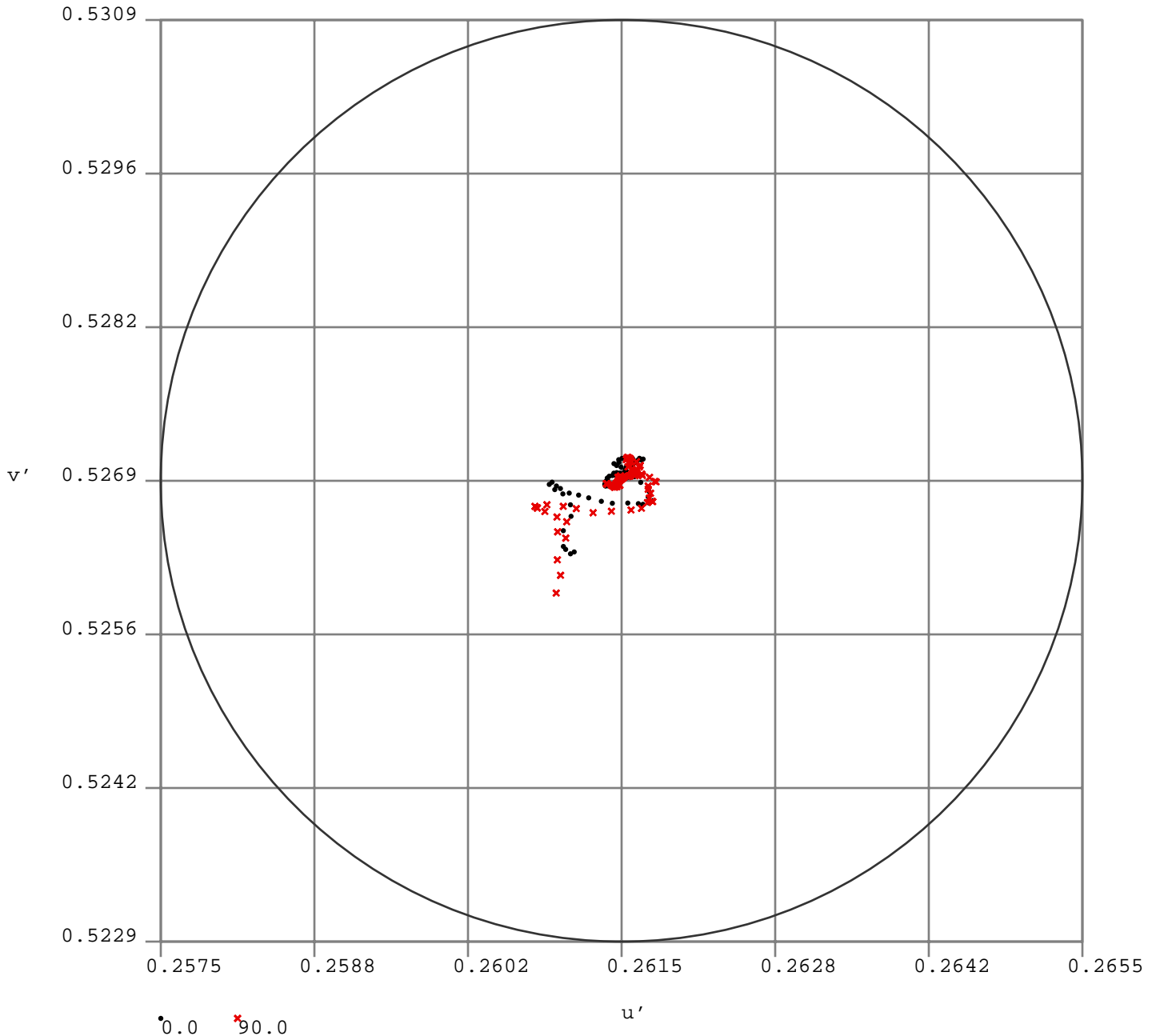
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**NVLAP**  
NVLAP LAB CODE: 200925-0

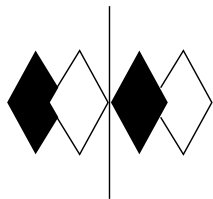
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REPORT NUMBER: ITL83107  
DATE: 10/10/14  
PREPARED FOR: RAB LIGHTING, INC.  
CATALOG NUMBER: SK9RYY (ROUND - SURFACE MOUNT)

Page: 10 of 10



NOTE: A 0.004 Del uv Boundary line from the weighted average point on the CIE 1976 (u'v') diagram for all angular intervals is provided.



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REPORT NUMBER: ITL83109  
DATE: 10/13/2014  
PREPARED FOR: RAB Lighting, Inc.  
LUMINAIRE CAT NO: SK9RYY (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.

LED DRIVER: Integral

DIMMER: Lutron SELV-300P Switched Sliding Dimmer

OBJECT OF TEST: Measure three complete luminaire samples for Start Time, Operating Frequency, Dimming Capabilities, Power Factor, and Off-State Power Consumption.

INSTRUMENTATION:	Calibration Due
Elgar 6006B AC Line Conditioner	NA
Tektronix TDS310 Digital Oscilloscope	03/31/15
Yokogawa WT210 Digital Power Meter	10/31/14

PROCEDURE: Each luminaire in turn was mounted in the horizontal position in a 25 +/-1 degree Celsius free air ambient. Each luminaire was then tested for Start Time, Operating Frequency, Power Factor, and Off-State Power Consumption with 120VAC, 60Hz input to the LED driver. The average of three measurements were recorded for each parameter, per luminaire. The dimmer was then installed on each luminaire in turn and light output measurements were recorded over the full range of dimmer settings at 120VAC, 60Hz input to the dimmer/driver combination.

RESULTS:

Performance Data

	<u>Unit A1</u>	<u>Unit B3</u>	<u>Unit B4</u>
Start Time (milliseconds):	247	312	389
Operating Frequency (Hertz):	120	120	120
Continuous Dimming From 100% to:	<5%	<5%	<5%
Power Factor(%):	99.0	99.0	98.9
Off-State Power Consumption(watts):	0	0	0

Note: The units tested did not incorporate integral switching.

Checked: R. Bergin

Approved: C. Stout