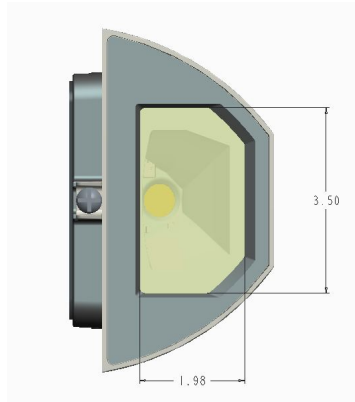
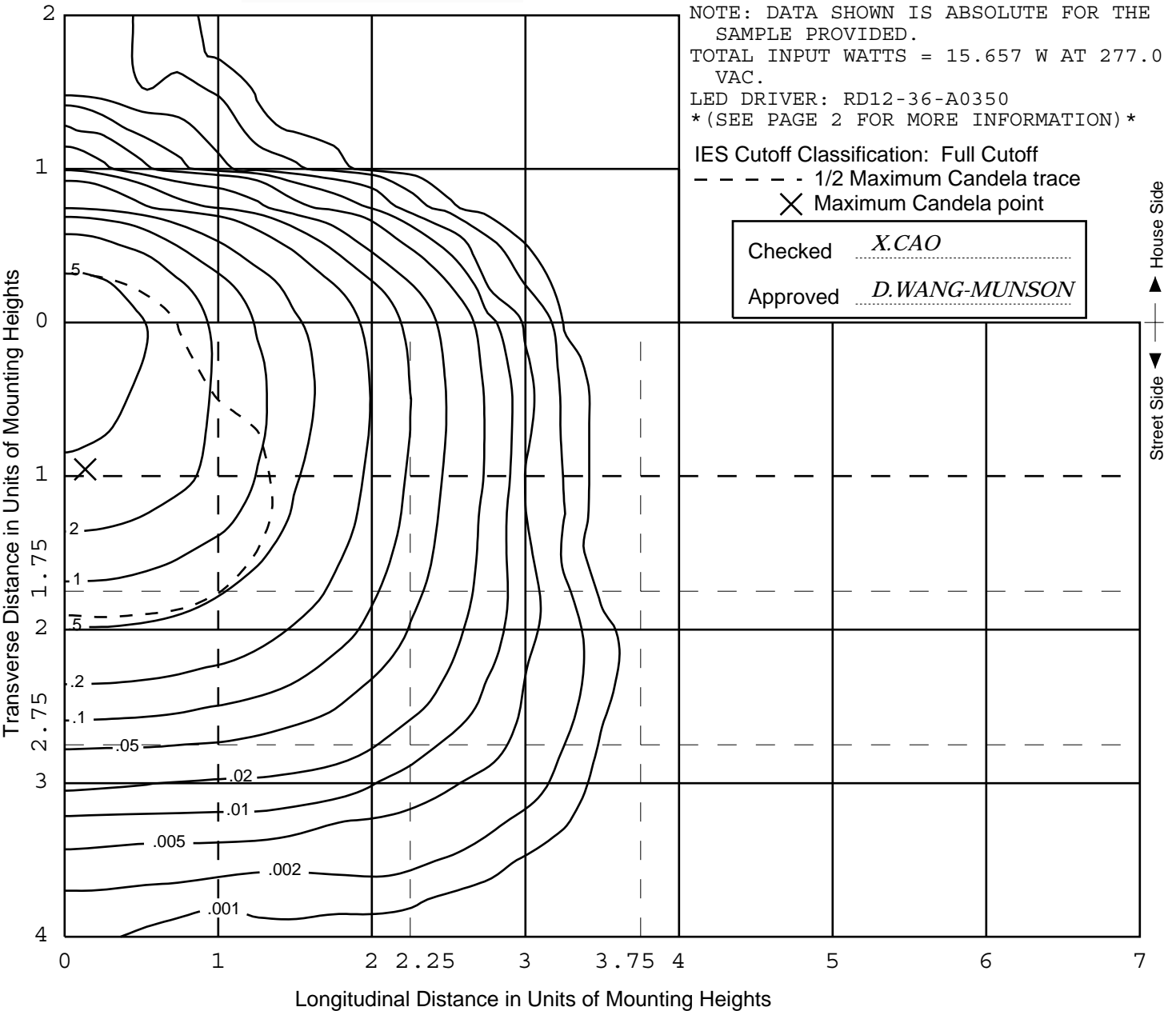


ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 10 foot mounting height.



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 ISSUE DATE: 08/17/16 PAGE: 1 OF 9
 DATE SAMPLE TESTED: 08/17/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: SLIM12Y
 LUMINAIRE: CAST BROWN PAINTED FINNED METAL HOUSING, 1 CIRCUIT BOARD WITH 1 LED, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, CLEAR FLAT GLASS LENS IN CAST BROWN PAINTED METAL LENS FRAME.
 LAMP: ONE WHITE MULTI-CHIP LIGHT EMITTING DIODE (LED), AIMED 20-DEGREES FROM VERTICAL BASE-UP POSITION.
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.
 TOTAL INPUT WATTS = 15.657 W AT 277.0 VAC.
 LED DRIVER: RD12-36-A0350
 (SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB02338
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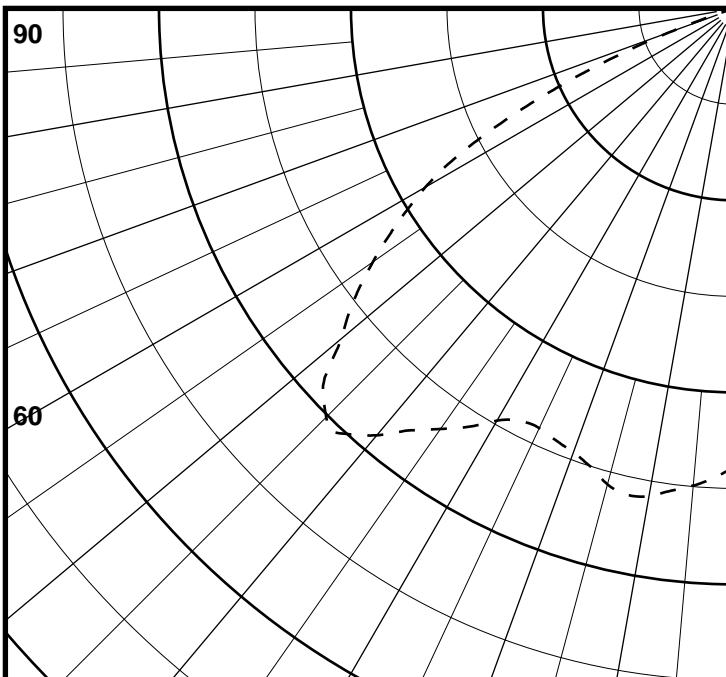
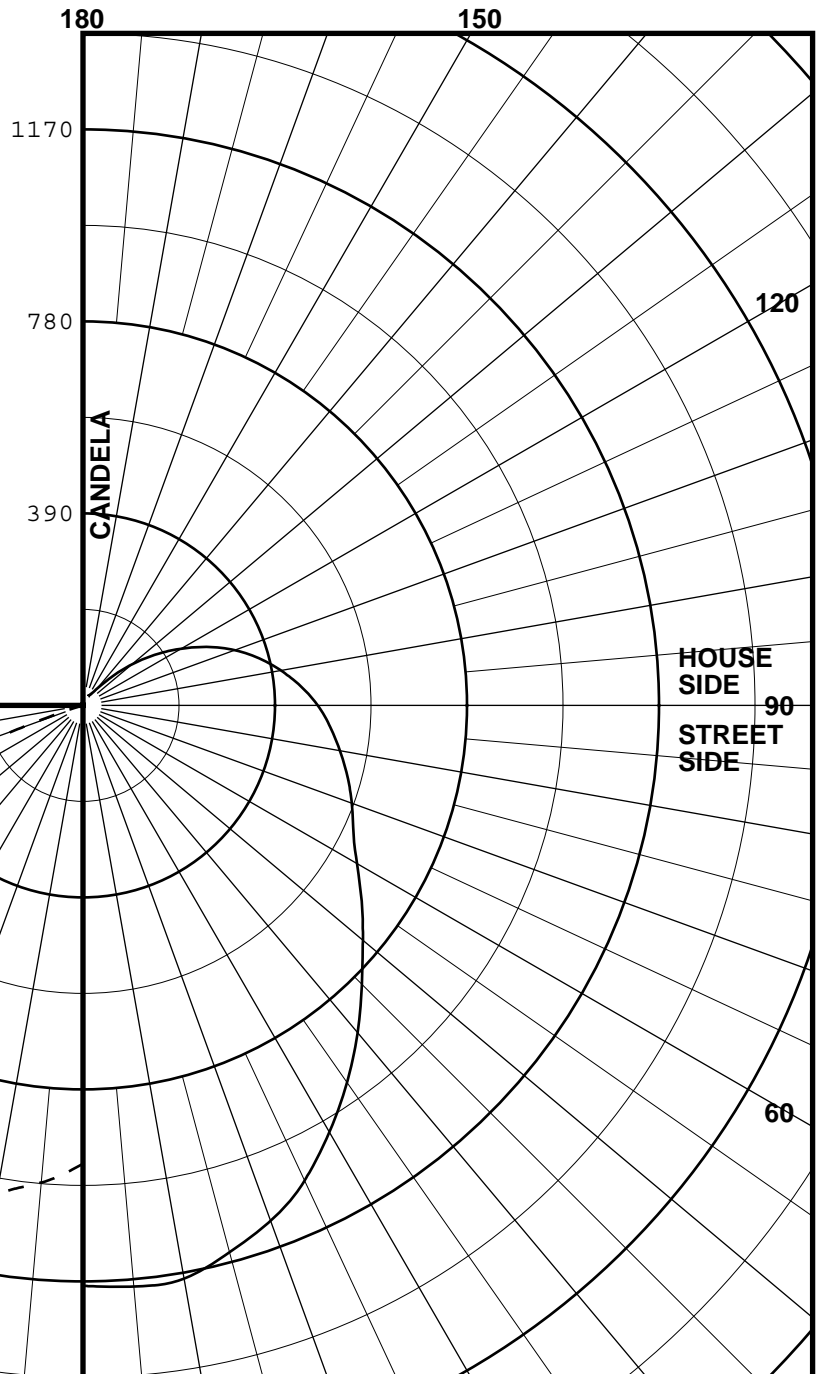
ADDITIONAL INFORMATION

TEST PROCEDURE: IESNA LM-79-08
ACCREDITED LABORATORY CODE 201058-0
TEST DISTANCE = 28.25 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.

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

REPORT NUMBER: RAB02338
 ISSUE DATE: 08/17/16 PAGE: 3 OF 9
 DATE SAMPLE TESTED: 08/17/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: SLIM12Y
 LUMINAIRE: CAST BROWN PAINTED FINNED METAL HOUSING, 1 CIRCUIT BOARD WITH 1 LED, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, CLEAR FLAT GLASS LENS IN CAST BROWN PAINTED METAL LENS FRAME.
 LAMP: ONE WHITE MULTI-CHIP LIGHT EMITTING DIODE (LED), AIMED 20-DEGREES FROM VERTICAL BASE-UP POSITION.
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.
 TOTAL INPUT WATTS = 15.657 W AT 277.0 VAC.
 LED DRIVER: RD12-36-A0350
 (SEE PAGE 2 FOR MORE INFORMATION)



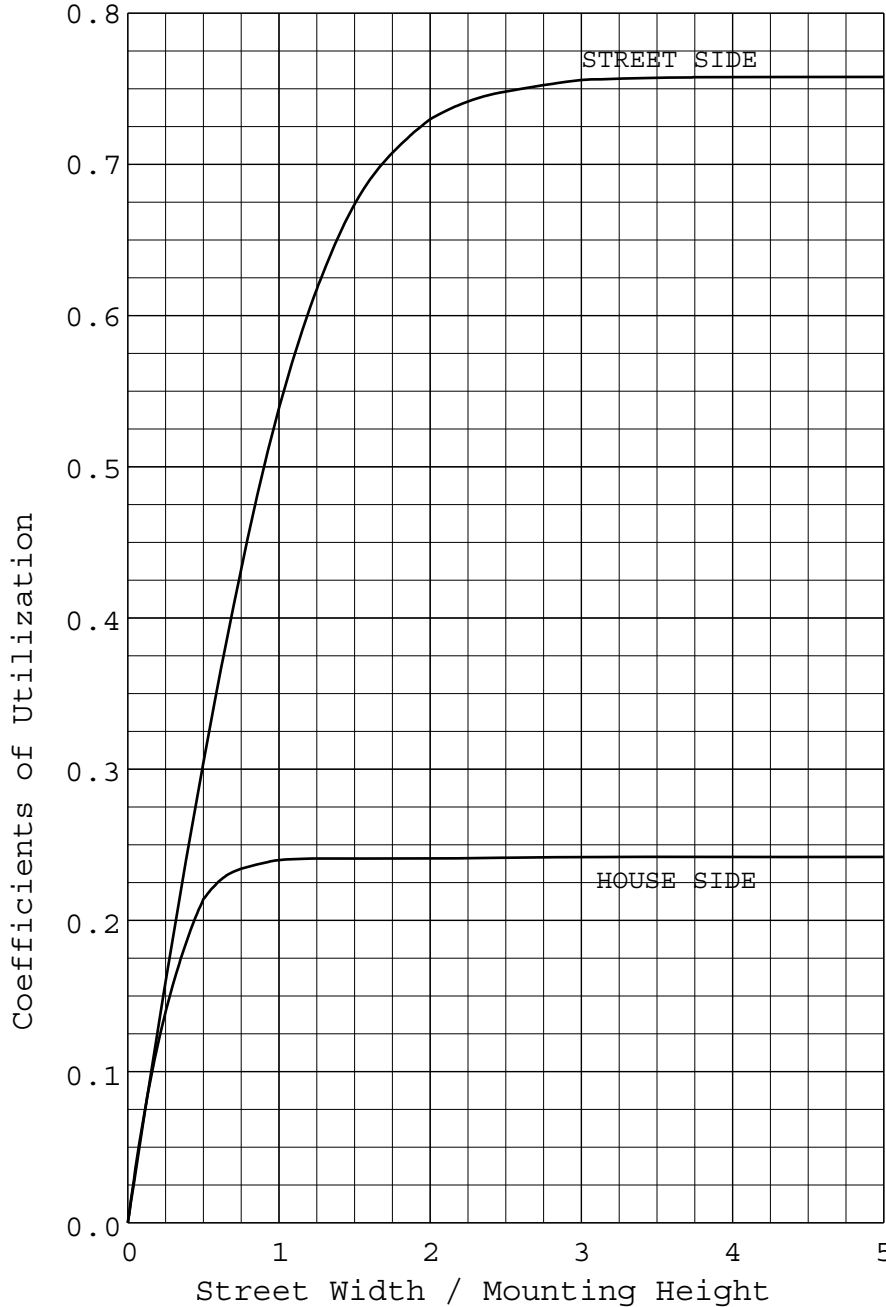
30 0 30
 VERTICAL PLANE THROUGH MAXIMUM CANDELA
 44.0 (Degrees Vertical)

30 0 30
 CONE THROUGH MAXIMUM CANDELA
 8.0 (Degrees Horizontal) = 1187

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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	1472.	75.8
DOWNWARD HOUSE SIDE	471.	24.2
DOWNWARD TOTAL	1942.	100.0
UPWARD STREET SIDE	0.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	0.	0.0
TOTAL FLUX	1942.	100.0
TOTAL INPUT WATTS = 15.7		
EFFICACY = 123.7 Lm/W		

ALL CANDELA AND LUMENS 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.

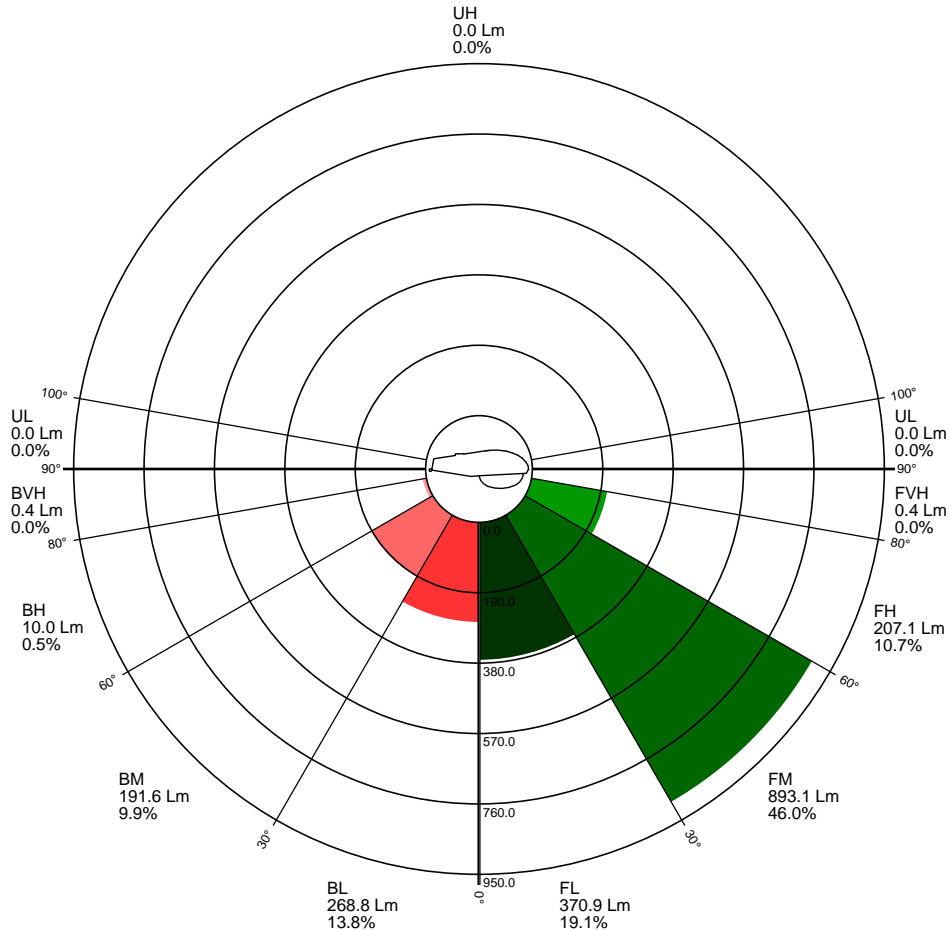
REPORT NUMBER: RAB02338
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 DATE SAMPLE TESTED: 08/17/16

BUG Rating:			B1	U0	G0
Zonal Summary		Lumens	Zone Ratings		
			B	U	G
Forward		1472			
FL	(0° - 30°)	370.9			
FM	(30° - 60°)	893.1			
FH	(60° - 80°)	207.1			G0
FVH	(80° - 90°)	0.4			G0
Backward		471			
BL	(0° - 30°)	268.8	B1		
BM	(30° - 60°)	191.6	B0		
BH	(60° - 80°)	10.0	B0		G0
BVH	(80° - 90°)	0.4			G0
Upward		0			
UL	(90° - 100°)	0.0		U0	
UH	(100° - 180°)	0.0		U0	
Trapped Light		0			
Total Flux		1942			

Zonal Lumen Summary

(Linear scale)

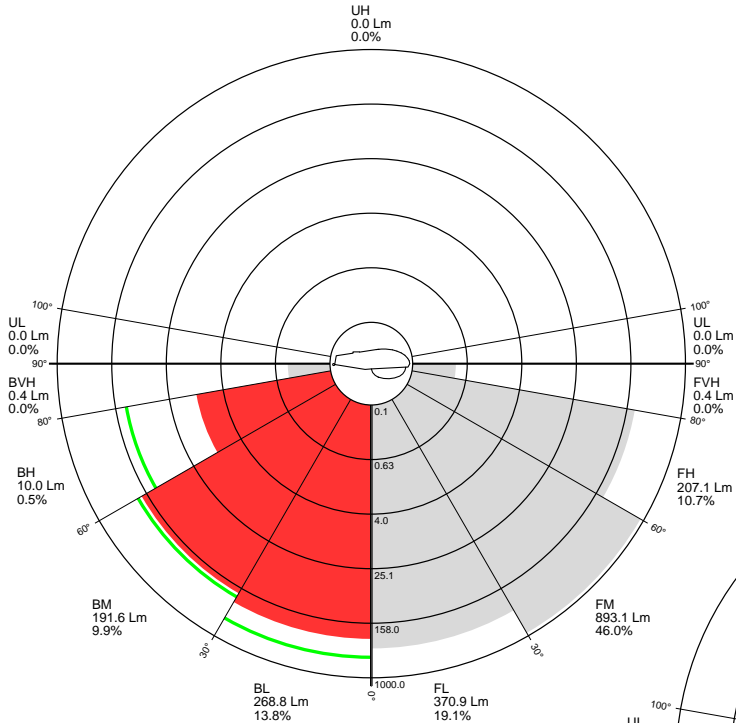


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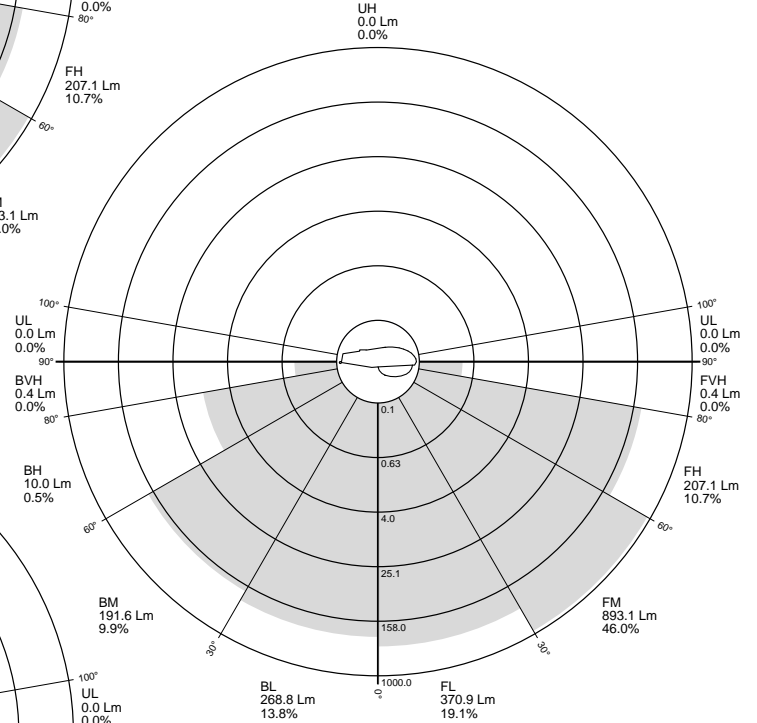
Backlight Rating Details

(Logarithmic scale)



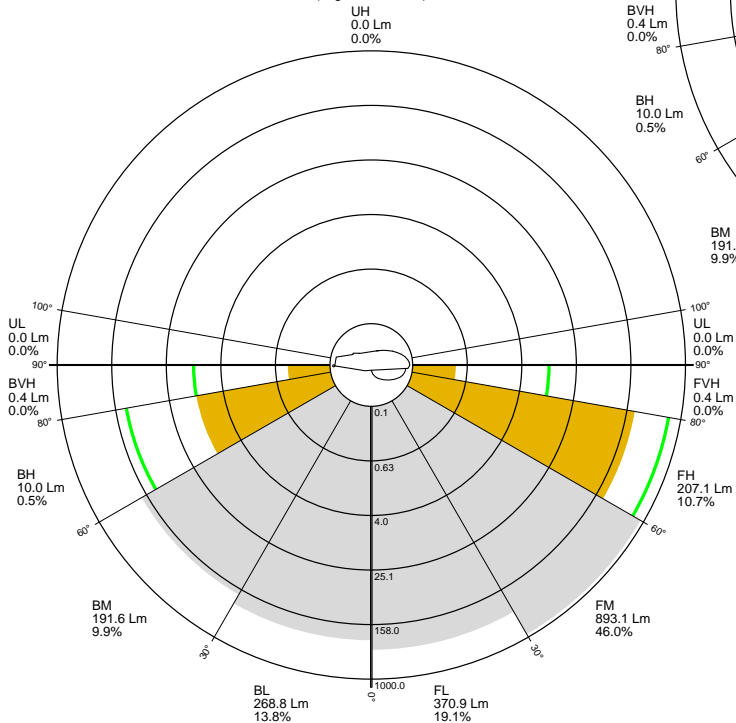
Uplight Rating Details

(Logarithmic scale)



Glare Rating Details

(Logarithmic scale)



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CANDELA TABULATION
 STREET SIDE

	LATERAL ANGLE										
	0.0	5.0	8.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0
	180.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	0.	0.	0.	0.	0.	1.	1.	1.	1.	1.
	85.0	0.	0.	0.	1.	1.	1.	1.	1.	1.	1.
	82.5	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
V	80.0	2.	2.	2.	1.	1.	2.	1.	1.	1.	1.
E	77.5	6.	5.	4.	3.	4.	9.	12.	4.	1.	1.
R	75.0	9.	9.	8.	8.	17.	38.	50.	26.	3.	1.
T	72.5	35.	34.	35.	46.	84.	138.	131.	76.	27.	11.
I	70.0	135.	137.	141.	170.	227.	276.	256.	168.	98.	63.
C	67.5	292.	294.	298.	327.	386.	409.	367.	272.	187.	142.
A	65.0	438.	450.	460.	485.	532.	532.	456.	358.	264.	218.
L	62.5	589.	597.	611.	634.	658.	648.	566.	423.	328.	274.
	60.0	707.	714.	726.	729.	750.	766.	689.	513.	404.	339.
A	57.5	800.	805.	814.	816.	839.	868.	801.	610.	493.	404.
N	55.0	886.	889.	898.	906.	920.	914.	836.	666.	558.	461.
G	52.5	970.	976.	977.	984.	991.	960.	813.	671.	559.	481.
L	50.0	1051.	1053.	1044.	1053.	1062.	988.	804.	665.	563.	496.
E	47.5	1137.	1138.	1135.	1115.	1101.	979.	803.	676.	582.	519.
	45.0	1166.	1173.	1174.	1154.	1079.	950.	802.	686.	600.	546.
	44.0<<	1179.	1185.	1187.	1150.	1065.	935.	801.	691.	606.	556.
	42.5	1166.	1170.	1172.	1124.	1044.	915.	796.	696.	617.	571.
	40.0	1133.	1133.	1132.	1091.	999.	898.	790.	702.	635.	599.
	37.5	1093.	1087.	1080.	1046.	971.	883.	795.	712.	662.	628.
	35.0	1056.	1049.	1043.	1018.	950.	873.	804.	732.	693.	659.
	30.0	980.	969.	967.	956.	920.	875.	821.	777.	751.	719.
	25.0	956.	950.	941.	923.	901.	872.	843.	816.	797.	769.
	20.0	970.	964.	960.	935.	908.	894.	878.	862.	835.	817.
	15.0	1004.	1003.	1001.	986.	964.	933.	906.	887.	869.	855.
	10.0	1011.	1009.	1006.	994.	978.	960.	942.	924.	908.	893.
	5.0	973.	973.	973.	969.	965.	961.	957.	954.	947.	939.
	0.0	931.	931.	931.	931.	931.	931.	931.	931.	931.	931.

||
 PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB02338
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 DATE SAMPLE TESTED: 08/17/16

CANDELA TABULATION
 HOUSE SIDE

LATERAL ANGLE

	90.0	95.0	105.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0	180.0
180.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
87.5	1.	1.	1.	1.	1.	1.	1.	1.	0.	0.	0.
85.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	0.	0.
82.5	1.	1.	1.	1.	1.	1.	1.	1.	1.	0.	0.
V 80.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
E 77.5	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
R 75.0	2.	2.	1.	1.	1.	1.	1.	1.	2.	2.	2.
T 72.5	4.	2.	1.	1.	1.	1.	1.	1.	3.	3.	3.
I 70.0	30.	13.	2.	1.	1.	1.	1.	1.	3.	4.	4.
C 67.5	85.	57.	4.	1.	1.	1.	1.	2.	3.	3.	4.
A 65.0	147.	114.	25.	1.	1.	1.	1.	1.	2.	3.	3.
L 62.5	196.	162.	62.	3.	1.	1.	1.	1.	2.	4.	4.
60.0	243.	210.	106.	12.	1.	1.	2.	2.	1.	3.	3.
A 57.5	296.	262.	149.	40.	3.	2.	3.	2.	1.	2.	2.
N 55.0	348.	306.	191.	79.	9.	3.	4.	3.	2.	2.	2.
G 52.5	383.	338.	235.	121.	30.	4.	4.	4.	5.	5.	6.
L 50.0	398.	365.	275.	167.	65.	9.	5.	6.	9.	12.	13.
E 47.5	428.	395.	316.	216.	110.	27.	8.	9.	13.	17.	18.
45.0	462.	430.	355.	263.	158.	62.	19.	15.	19.	23.	25.
44.0<<	477.	444.	370.	281.	180.	80.	28.	20.	23.	27.	28.
42.5	498.	465.	393.	309.	207.	111.	48.	28.	29.	32.	33.
40.0	532.	503.	435.	359.	267.	170.	97.	57.	46.	46.	47.
37.5	570.	545.	481.	407.	330.	239.	160.	105.	82.	74.	75.
35.0	610.	588.	528.	458.	389.	310.	226.	168.	139.	125.	126.
30.0	688.	668.	613.	553.	494.	436.	377.	318.	287.	262.	263.
25.0	750.	734.	686.	635.	588.	542.	507.	471.	441.	420.	422.
20.0	795.	781.	746.	709.	667.	635.	606.	580.	566.	559.	560.
15.0	836.	823.	793.	764.	735.	710.	689.	671.	664.	658.	660.
10.0	872.	865.	844.	820.	800.	782.	768.	759.	753.	750.	747.
5.0	921.	914.	900.	886.	874.	864.	855.	850.	844.	842.	841.
0.0	931.	931.	931.	931.	931.	931.	931.	931.	931.	931.	931.

CONE OF MAXIMUM CANDELA

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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	22
5- 10	64
10- 15	100
15- 20	130
20- 25	154
25- 30	170
30- 35	179
35- 40	182
40- 45	187
45- 50	190
50- 55	183
55- 60	164
60- 65	123
65- 70	72
70- 75	20
75- 80	2
80- 85	1
85- 90	0
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
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	86
0- 20	316
0- 30	640
0- 40	1000
0- 50	1377
0- 60	1724
0- 70	1920
0- 80	1942
0- 90	1942
0-100	1942
0-110	1942
0-120	1942
0-130	1942
0-140	1942
0-150	1942
0-160	1942
0-170	1942
0-180	1942

REPORT NUMBER: RAB02339
DATE: 8/15/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: SLIM12Y

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ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST BROWN PAINTED FINNED METAL HOUSING, 1 CIRCUIT BOARD WITH 1 LED, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, CLEAR FLAT GLASS LENS IN CAST BROWN PAINTED METAL LENS FRAME.

LAMP: ONE WHITE MULTI-CHIP LIGHT EMITTING DIODE (LED), AIMED 20-DEGREES FROM VERTICAL BASE-UP POSITION.

DRIVER: RD12-36-A0350

OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (277.0 AND 120.0 VAC, 60Hz) TO THE TEST SAMPLE.

INSTRUMENTS: GWINSTEK PROGRAMMABLE AC POWER SOURCE APS-7100
CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202
OCEAN OPTICS QE65PRO Spectroradiometer
RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry

Calibration Due:
N/A
2/26/17
8/11/17
8/11/17

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRIa,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. Measure electrical data including Total Harmonic Distortion (THD) at maximum nominal rated input voltage. Report Off-State Power.

PROCEDURE: The test sample was mounted inside the integrating sphere, energized, 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 60 HZ input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. Electrical data was also recorded at maximum nominal rated input voltage (120.0 VAC). 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

REPORT NUMBER: RAB02339
 DATE: 8/15/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: SLIM12Y

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	1942 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4334
Chromaticity Ordinate y	0.4058
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2476
Chromaticity Ordinate v'	0.5215
Correlated Color Temp CCT (K)	3074
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	5458 *
ELECTRICAL	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.059
Input Power (Watts)	15.7
Input Power Factor (%)	95.2
Input Current THD (%)	13.2
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
123.7	
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.125
Input Power (Watts)	14.9
Input Power Factor (%)	99.4
Input Current THD (%)	8.0
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
0.0	

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	71
R1 Light greyish red	67
R2 Dark greyish yellow	80
R3 Strong yellowish green	91
R4 Moderate yellowish green	67
R5 Light bluish green	66
R6 Light blue	72
R7 Light violet	78
R8 Light reddish purple	44
R9 Strong red	-34
R10 Strong yellow	53
R11 Strong green	61
R12 Strong blue	42
R13 Light yellowish pink (skin)	69
R14 Moderate olive green (leaf)	95

*NOTE:

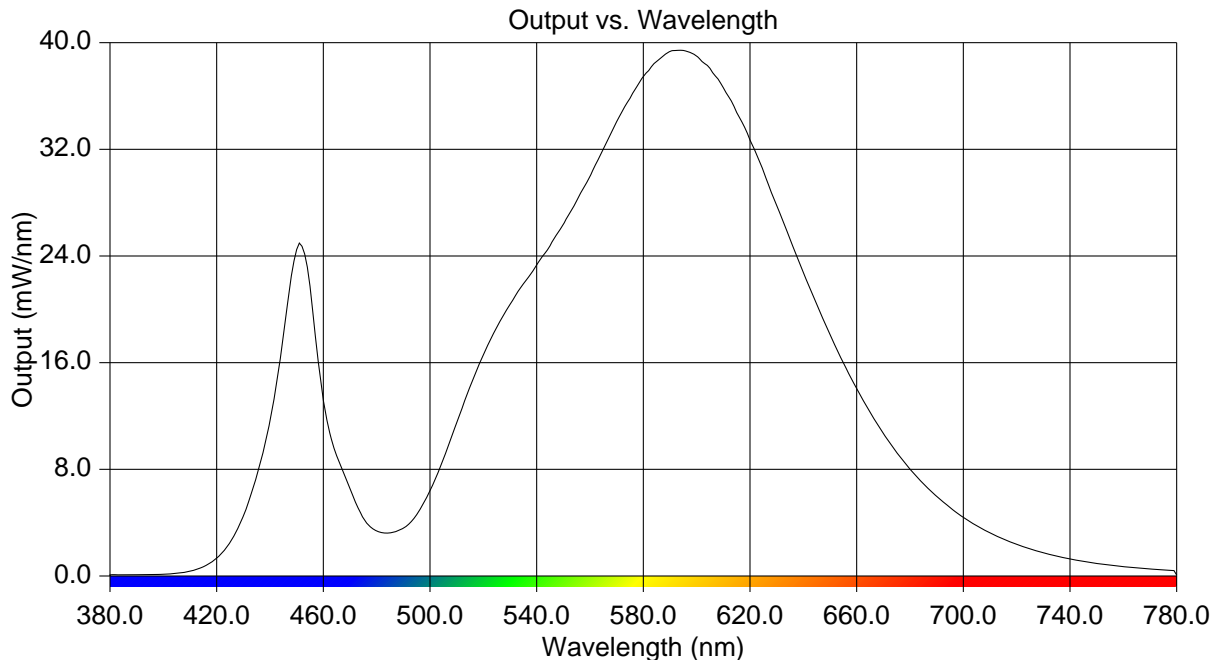
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	0.085	515	14.171	650	18.134
385	0.091	520	16.601	655	15.995
390	0.096	525	18.631	660	14.062
395	0.107	530	20.365	665	12.275
400	0.131	535	21.908	670	10.705
405	0.200	540	23.334	675	9.282
410	0.356	545	24.760	680	8.041
415	0.692	550	26.357	685	6.915
420	1.331	555	28.142	690	5.958
425	2.511	560	29.998	695	5.139
430	4.500	565	32.031	700	4.396
435	7.531	570	34.078	705	3.766
440	11.611	575	35.826	710	3.233
445	18.029	580	37.481	715	2.771
450	24.486	585	38.587	720	2.373
455	21.744	590	39.342	725	2.031
460	13.241	595	39.417	730	1.742
465	9.017	600	38.991	735	1.487
470	6.556	605	38.072	740	1.273
475	4.359	610	36.620	745	1.100
480	3.370	615	34.766	750	0.948
485	3.239	620	32.696	755	0.814
490	3.581	625	30.363	760	0.701
495	4.597	630	27.787	765	0.605
500	6.410	635	25.274	770	0.525
505	8.741	640	22.761	775	0.455
510	11.477	645	20.345	780	0.069



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CIE Chromaticity Diagram

