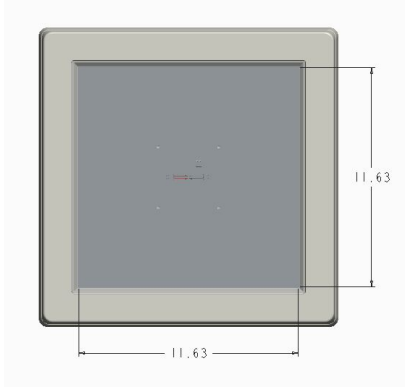


## ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

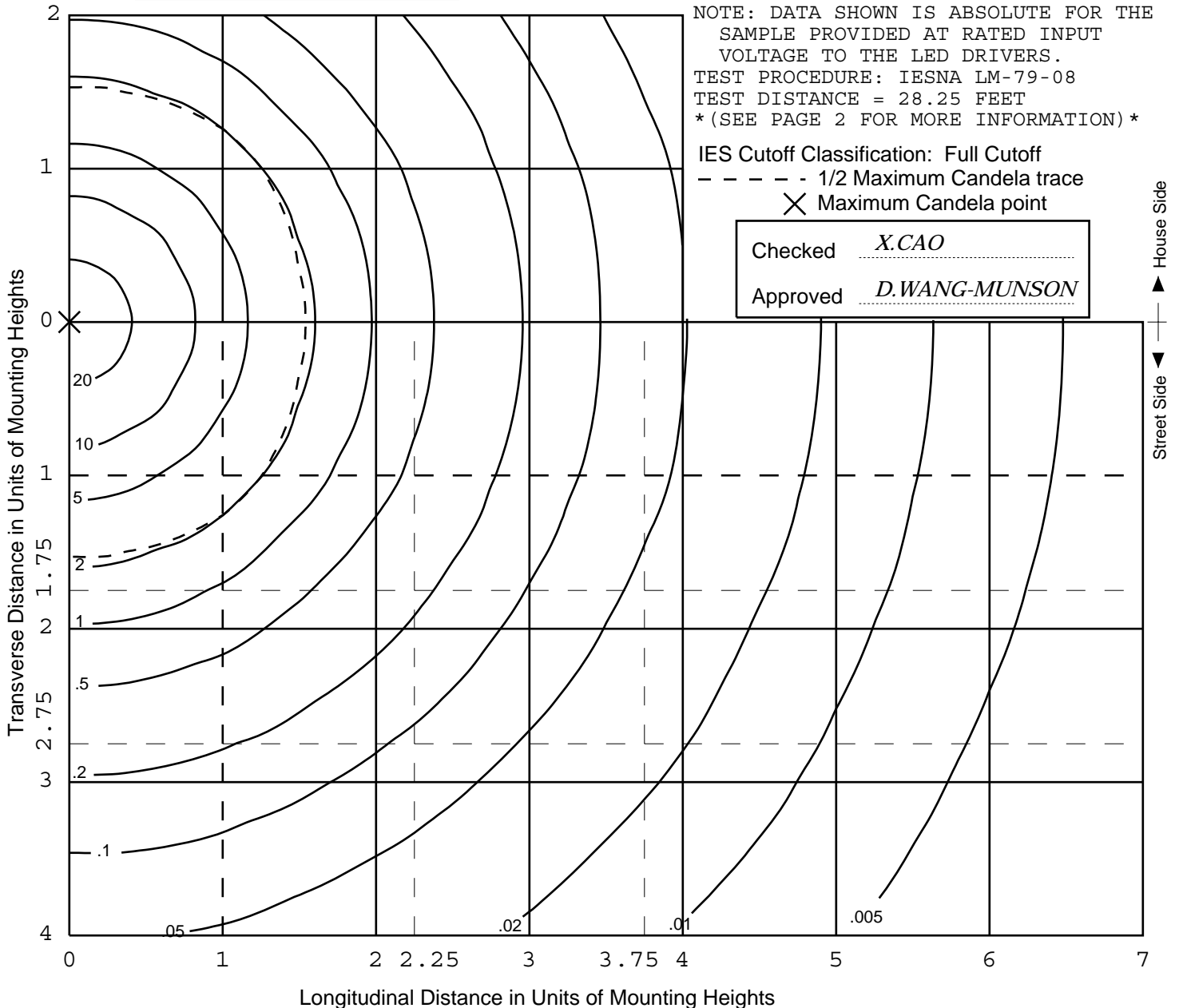
Values based on 14 foot mounting height.



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 ISSUE DATE: 06/01/15 PAGE: 1 OF 9  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: MASI16-100W/D10  
 LUMINAIRE: CAST METAL HOUSING, CAST METAL HEAT SINK, 1 WHITE CIRCUIT BOARD WITH 306 LEDS, CLEAR FLAT GLASS DOOR IN CAST WHITE PAINTED METAL FRAME.  
 LAMPS: THREE HUNDRED AND SIX WHITE LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-UP POSITION.  
 TOTAL INPUT WATTS = 114.43 AT 120.0 VOLTS  
 LED DRIVERS: PSDV151101C  
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE TO THE LED DRIVERS.  
 TEST PROCEDURE: IESNA LM-79-08  
 TEST DISTANCE = 28.25 FEET  
 \*(SEE PAGE 2 FOR MORE INFORMATION) \*

IES Cutoff Classification: Full Cutoff

--- 1/2 Maximum Candela trace  
 X Maximum Candela point



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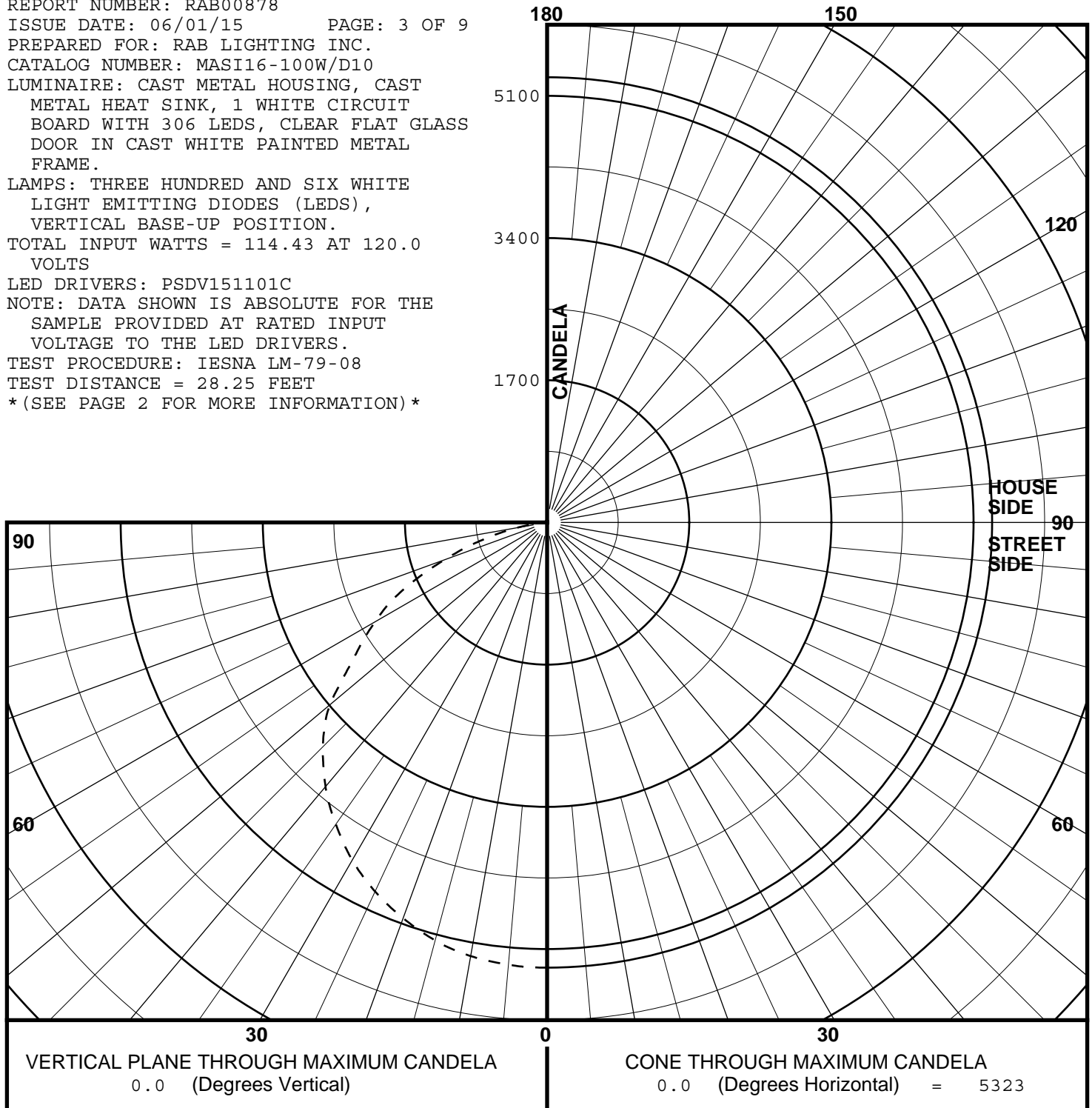
PAGE: 2 OF 9

ADDITIONAL INFORMATION

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.  
ACCREDITED LABORATORY CODE 201058-0

## MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

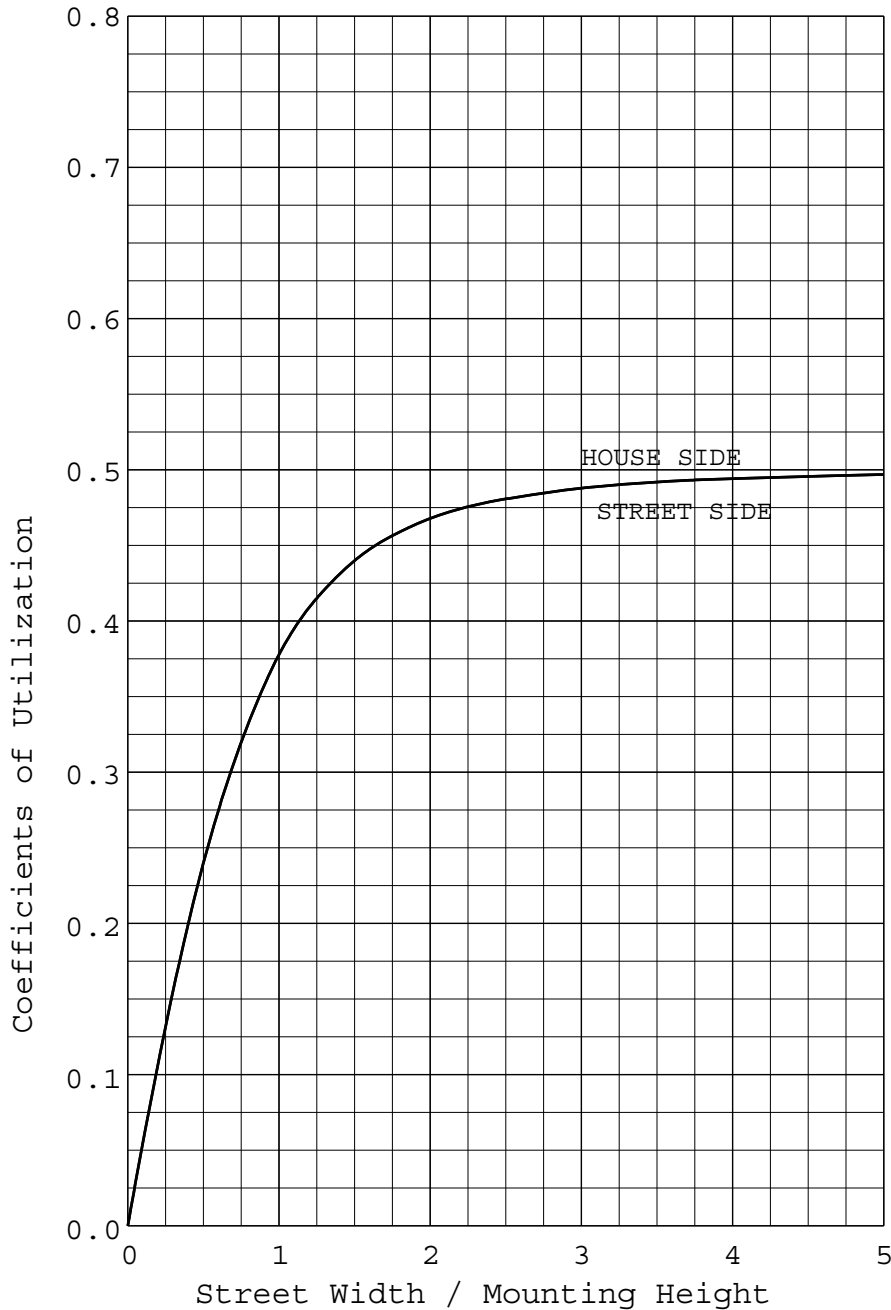
REPORT NUMBER: RAB00878  
 ISSUE DATE: 06/01/15 PAGE: 3 OF 9  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: MASI16-100W/D10  
 LUMINAIRE: CAST METAL HOUSING, CAST  
 METAL HEAT SINK, 1 WHITE CIRCUIT  
 BOARD WITH 306 LEDS, CLEAR FLAT GLASS  
 DOOR IN CAST WHITE PAINTED METAL  
 FRAME.  
 LAMPS: THREE HUNDRED AND SIX WHITE  
 LIGHT EMITTING DIODES (LEDS),  
 VERTICAL BASE-UP POSITION.  
 TOTAL INPUT WATTS = 114.43 AT 120.0  
 VOLTS  
 LED DRIVERS: PSDV151101C  
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
 SAMPLE PROVIDED AT RATED INPUT  
 VOLTAGE TO THE LED DRIVERS.  
 TEST PROCEDURE: IESNA LM-79-08  
 TEST DISTANCE = 28.25 FEET  
 \*(SEE PAGE 2 FOR MORE INFORMATION) \*



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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	7672.	50.0
DOWNWARD HOUSE SIDE	7672.	50.0
DOWNWARD TOTAL	15344.	100.0
UPWARD STREET SIDE	0.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	0.	0.0
TOTAL FLUX	15344.	100.0
TOTAL INPUT WATTS = 114.4		
EFFICACY = 134.1 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.

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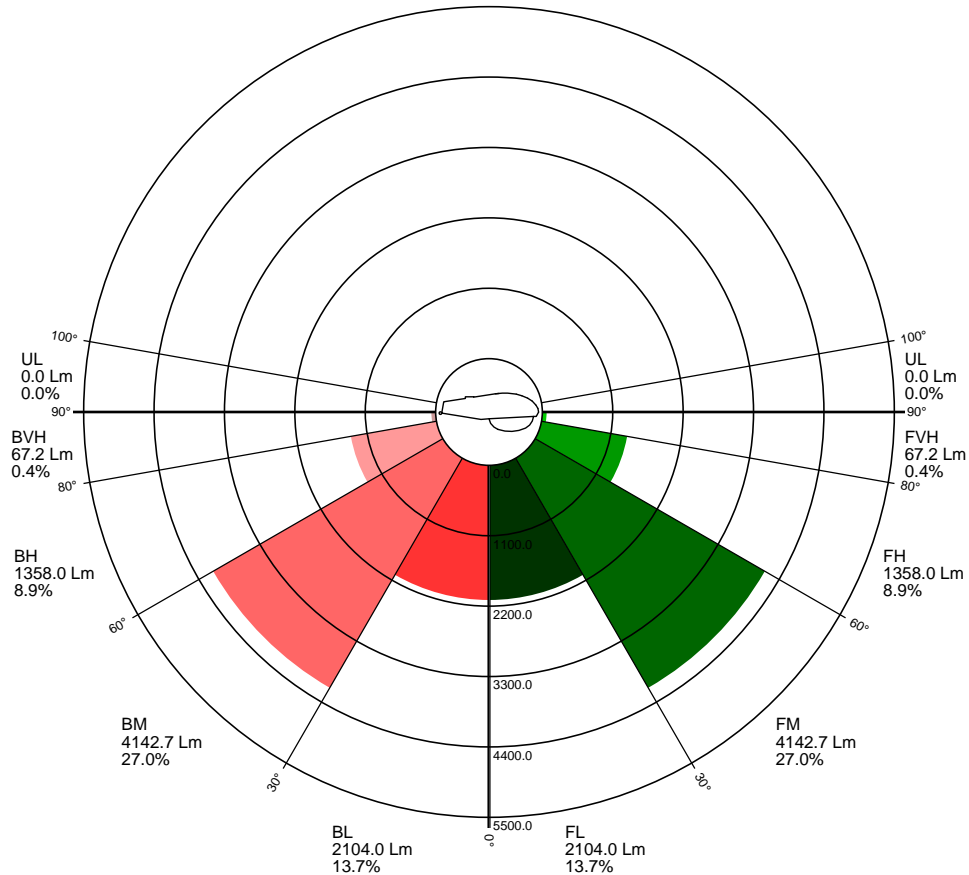
PAGE: 5 OF 9

BUG Rating:				B3 U0 G1		
Zonal Summary		Lumens	% of Fixture	Zone Ratings		
				B	U	G
Forward		7672	50.0			
FL	(0° - 30°)	2104.0	13.7			
FM	(30° - 60°)	4142.7	27.0			
FH	(60° - 80°)	1358.0	8.9			G1
FVH	(80° - 90°)	67.2	0.4			G1
Backward		7672	50.0			
BL	(0° - 30°)	2104.0	13.7	B3		
BM	(30° - 60°)	4142.7	27.0	B3		
BH	(60° - 80°)	1358.0	8.9	B3		G1
BVH	(80° - 90°)	67.2	0.4			G1
Upward		0	0.0			
UL	(90° - 100°)	0.0	0.0		U0	
UH	(100° - 180°)	0.0	0.0		U0	
Trapped Light		0	0.0			
Total Flux		15344	100.0			

### Zonal Lumen Summary

(Linear scale)

UH  
0.0 Lm  
0.0%

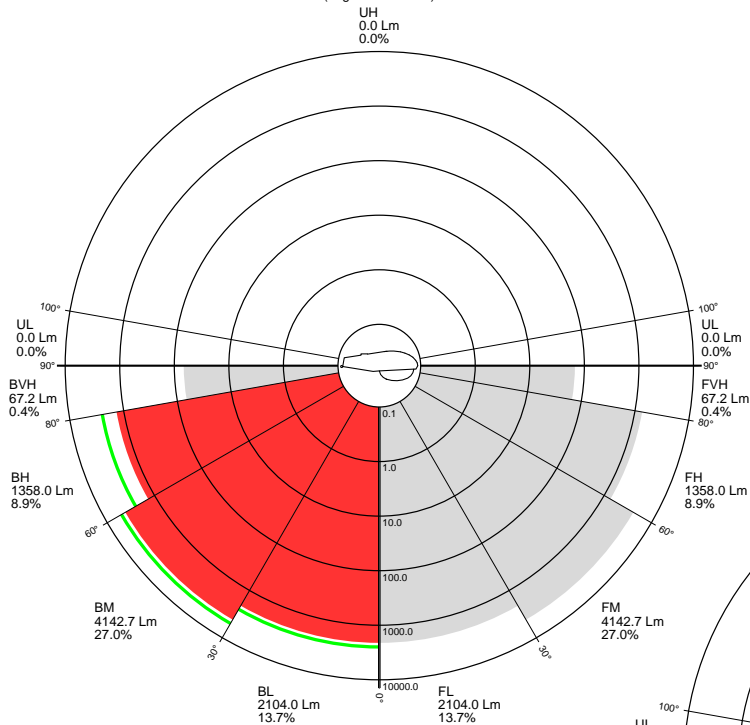


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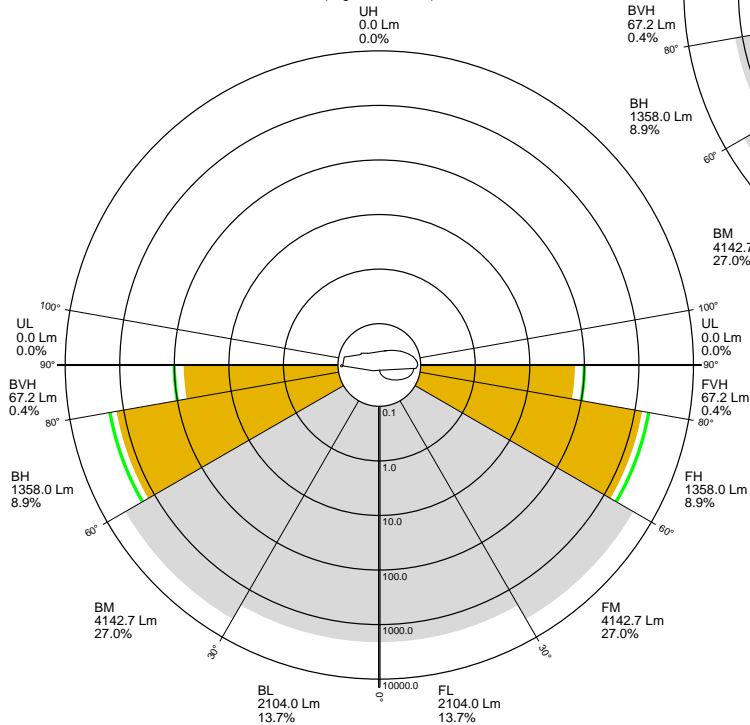
## Backlight Rating Details

(Logarithmic scale)



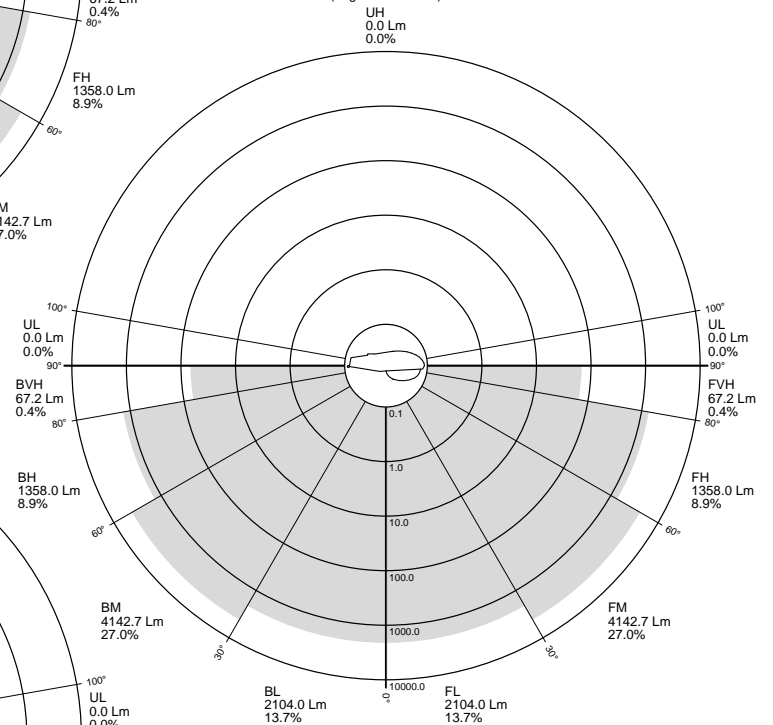
## Glare Rating Details

(Logarithmic scale)



## Uplight Rating Details

(Logarithmic scale)



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### CANDELA TABULATION

	STREET SIDE	LATERAL ANGLE								
		0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0 85.0
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	33.	34.	36.	38.	39.	38.	39.	37.	35. 33.
	85.0	85.	86.	88.	88.	89.	85.	88.	87.	86. 85.
	82.5	192.	193.	195.	193.	195.	190.	194.	190.	193. 192.
	80.0	364.	364.	361.	359.	356.	348.	356.	350.	355. 357.
	77.5	574.	576.	576.	550.	559.	547.	560.	544.	568. 566.
	75.0	793.	811.	815.	792.	785.	778.	790.	789.	813. 796.
	72.5	1052.	1068.	1063.	1053.	1030.	1072.	1031.	1048.	1055. 1060.
V	70.0	1305.	1314.	1315.	1356.	1316.	1322.	1312.	1342.	1303. 1307.
E	67.5	1599.	1620.	1636.	1657.	1607.	1562.	1602.	1646.	1633. 1613.
R	65.0	1893.	1906.	1904.	1911.	1907.	1800.	1900.	1904.	1898. 1897.
T	62.5	2160.	2162.	2160.	2155.	2165.	2114.	2162.	2149.	2154. 2151.
I	60.0	2374.	2394.	2401.	2390.	2406.	2497.	2396.	2384.	2392. 2387.
C	57.5	2601.	2626.	2630.	2625.	2713.	2771.	2706.	2615.	2621. 2615.
A	55.0	2819.	2831.	2855.	2910.	2989.	3000.	3000.	2887.	2841. 2833.
L	52.5	3087.	3105.	3156.	3203.	3206.	3210.	3216.	3210.	3142. 3076.
	50.0	3392.	3402.	3418.	3419.	3410.	3414.	3416.	3422.	3427. 3400.
A	47.5	3609.	3613.	3610.	3605.	3605.	3602.	3608.	3609.	3624. 3610.
N	45.0	3793.	3790.	3793.	3790.	3791.	3786.	3793.	3792.	3803. 3790.
G	42.5	3960.	3961.	3964.	3966.	3958.	3953.	3961.	3966.	3972. 3959.
L	40.0	4123.	4118.	4122.	4127.	4120.	4114.	4117.	4122.	4133. 4117.
E	37.5	4272.	4268.	4273.	4274.	4270.	4269.	4268.	4271.	4282. 4266.
	35.0	4405.	4410.	4414.	4416.	4414.	4410.	4412.	4413.	4416. 4410.
	30.0	4661.	4662.	4663.	4667.	4663.	4663.	4662.	4666.	4665. 4662.
	25.0	4868.	4860.	4864.	4868.	4868.	4865.	4867.	4864.	4865. 4859.
	20.0	5035.	5031.	5031.	5031.	5037.	5037.	5036.	5030.	5032. 5029.
	15.0	5174.	5170.	5169.	5166.	5167.	5169.	5167.	5168.	5169. 5168.
	10.0	5264.	5261.	5260.	5257.	5256.	5258.	5256.	5259.	5261. 5262.
	5.0	5306.	5300.	5299.	5299.	5300.	5299.	5300.	5299.	5302. 5303.
	0.0<<	5323.	5323.	5323.	5323.	5323.	5323.	5323.	5323.	5323. 5323.

||  
 PLANE OF MAXIMUM CANDELA  
 |  
 CONE OF MAXIMUM CANDELA

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### 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
90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
87.5	32.	33.	35.	37.	39.	38.	39.	38.	36.	34.	33.
85.0	84.	85.	86.	87.	88.	85.	89.	88.	88.	86.	85.
82.5	190.	192.	193.	190.	194.	190.	195.	193.	195.	193.	192.
80.0	358.	357.	355.	350.	356.	348.	356.	359.	361.	364.	364.
77.5	568.	566.	568.	544.	560.	547.	559.	550.	576.	576.	574.
75.0	793.	796.	813.	789.	790.	778.	785.	792.	815.	811.	793.
72.5	1056.	1060.	1055.	1048.	1031.	1072.	1030.	1053.	1063.	1068.	1052.
V 70.0	1309.	1307.	1303.	1342.	1312.	1322.	1316.	1356.	1315.	1314.	1305.
E 67.5	1605.	1613.	1633.	1646.	1602.	1562.	1607.	1657.	1636.	1620.	1599.
R 65.0	1900.	1897.	1898.	1904.	1900.	1800.	1907.	1911.	1904.	1906.	1893.
T 62.5	2155.	2151.	2154.	2149.	2162.	2114.	2165.	2155.	2160.	2162.	2160.
I 60.0	2389.	2387.	2392.	2384.	2396.	2497.	2406.	2390.	2401.	2394.	2374.
C 57.5	2615.	2615.	2621.	2615.	2706.	2771.	2713.	2625.	2630.	2626.	2601.
A 55.0	2831.	2833.	2841.	2887.	3000.	3000.	2989.	2910.	2855.	2831.	2819.
L 52.5	3084.	3076.	3142.	3210.	3216.	3210.	3206.	3203.	3156.	3105.	3087.
50.0	3416.	3400.	3427.	3422.	3416.	3414.	3410.	3419.	3418.	3402.	3392.
A 47.5	3624.	3610.	3624.	3609.	3608.	3602.	3605.	3605.	3610.	3613.	3609.
N 45.0	3805.	3790.	3803.	3792.	3793.	3786.	3791.	3790.	3793.	3790.	3793.
G 42.5	3973.	3959.	3972.	3966.	3961.	3953.	3958.	3966.	3964.	3961.	3960.
L 40.0	4127.	4117.	4133.	4122.	4117.	4114.	4120.	4127.	4122.	4118.	4123.
E 37.5	4274.	4266.	4282.	4271.	4268.	4269.	4270.	4274.	4273.	4268.	4272.
35.0	4409.	4410.	4416.	4413.	4412.	4410.	4414.	4416.	4414.	4410.	4405.
30.0	4663.	4662.	4665.	4666.	4662.	4663.	4663.	4667.	4663.	4662.	4661.
25.0	4868.	4859.	4865.	4864.	4867.	4865.	4868.	4868.	4864.	4860.	4868.
20.0	5037.	5029.	5032.	5030.	5036.	5037.	5037.	5031.	5031.	5031.	5035.
15.0	5175.	5168.	5169.	5168.	5167.	5169.	5167.	5166.	5169.	5170.	5174.
10.0	5266.	5262.	5261.	5259.	5256.	5258.	5256.	5257.	5260.	5261.	5264.
5.0	5306.	5303.	5302.	5299.	5300.	5299.	5300.	5299.	5299.	5300.	5306.
0.0<<	5323.	5323.	5323.	5323.	5323.	5323.	5323.	5323.	5323.	5323.	5323.

CONE OF MAXIMUM CANDELA



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5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	127
5- 10	378
10- 15	619
15- 20	841
20- 25	1038
25- 30	1206
30- 35	1337
35- 40	1424
40- 45	1466
45- 50	1457
50- 55	1375
55- 60	1227
60- 65	1045
65- 70	816
70- 75	551
75- 80	304
80- 85	112
85- 90	22

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	505
0- 20	1964
0- 30	4208
0- 40	6969
0- 50	9891
0- 60	12493
0- 70	14354
0- 80	15209
0- 90	15344

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DATE: 6/1/2015  
PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: MASI16-100W/D10

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ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST METAL HOUSING, CAST METAL HEAT SINK, 1 WHITE CIRCUIT BOARD WITH 306 LEDS, CLEAR FLAT GLASS DOOR IN CAST WHITE PAINTED METAL FRAME.

LAMP: THREE HUNDRED AND SIX LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-UP POSITION.

DRIVER: PSDV151101A

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

INSTRUMENTS:	CHROMA PROGRAMMABLE AC POWER SOURCE MODEL 61602	Calibration Due: N/A
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	3/9/16
	OCEAN OPTICS QE65PRO Spectroradiometer	5/15/16
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	5/15/16

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 (277.0 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

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### RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	15344 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3414
Chromaticity Ordinate y	0.3488
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2100
Chromaticity Ordinate v'	0.4827
Correlated Color Temp CCT (K)	5136
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	46750 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.959
Input Power (Watts)	114.4
Input Power Factor (%)	99.4
Input Current THD (%)	7.4
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	134.1
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.435
Input Power (Watts)	113.4
Input Power Factor (%)	94.1
Input Current THD (%)	16.0
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	75
R1 Light greyish red	73
R2 Dark greyish yellow	79
R3 Strong yellowish green	81
R4 Moderate yellowish green	76
R5 Light bluish green	74
R6 Light blue	71
R7 Light violet	82
R8 Light reddish purple	61
R9 Strong red	-16
R10 Strong yellow	48
R11 Strong green	74
R12 Strong blue	48
R13 Light yellowish pink (skin)	74
R14 Moderate olive green (leaf)	89

### \*NOTE:

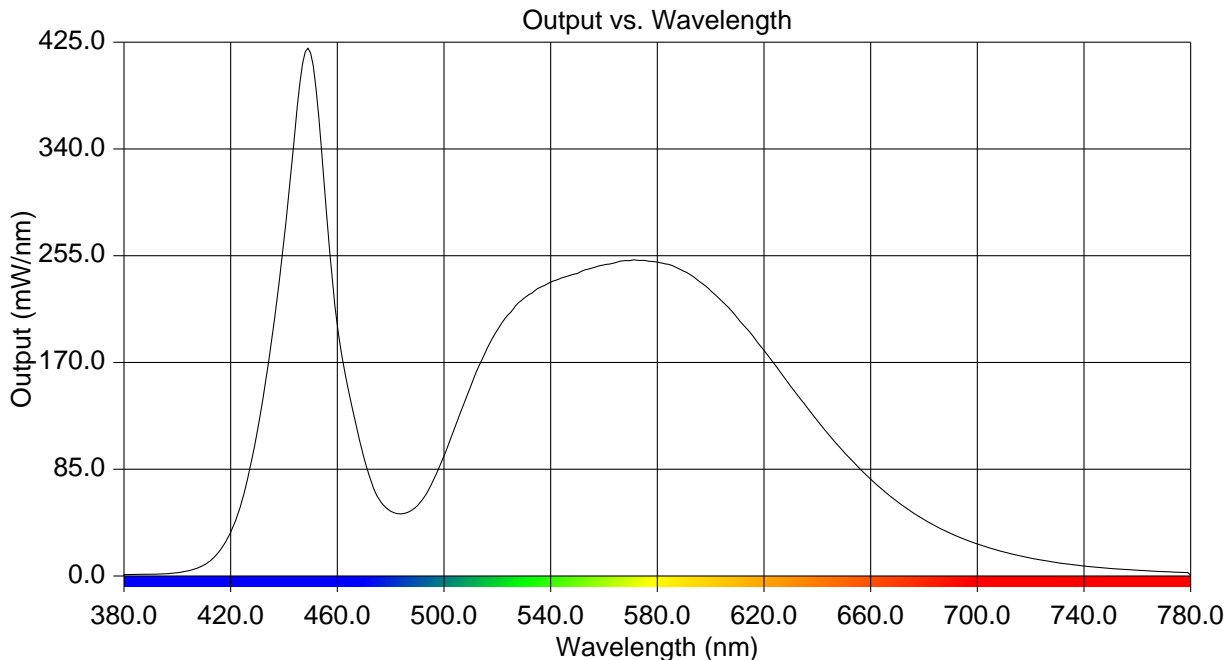
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	1.048	515	175.820	650	98.709
385	1.218	520	195.941	655	87.560
390	1.387	525	210.150	660	77.205
395	1.774	530	221.331	665	67.756
400	2.649	535	228.941	670	59.225
405	4.497	540	234.052	675	51.638
410	8.754	545	238.100	680	44.882
415	17.747	550	241.077	685	39.085
420	34.810	555	245.009	690	33.887
425	65.849	560	247.917	695	29.441
430	115.396	565	250.344	700	25.441
435	182.605	570	251.392	705	22.070
440	267.458	575	251.560	710	19.078
445	374.688	580	249.990	715	16.482
450	416.634	585	247.973	720	14.228
455	314.340	590	242.782	725	12.263
460	199.725	595	236.175	730	10.658
465	139.804	600	227.334	735	9.193
470	94.049	605	217.481	740	7.966
475	63.687	610	205.678	745	6.923
480	51.435	615	193.536	750	6.030
485	49.872	620	179.549	755	5.200
490	55.935	625	166.149	760	4.544
495	71.735	630	151.356	765	3.903
500	95.937	635	137.617	770	3.434
505	122.989	640	123.639	775	2.985
510	151.079	645	110.854	780	0.453



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## CIE Chromaticity Diagram

