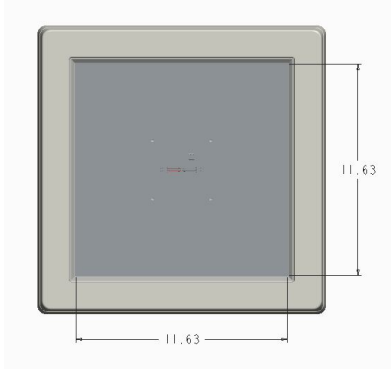


## ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 14 foot mounting height.



REPORT NUMBER: RAB00886  
ISSUE DATE: 06/01/15 PAGE: 1 OF 9  
PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: MASI16-80W/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 = 86.319 AT 277.0 VOLTS

LED DRIVERS: PSDV151101A + 75Kohm Resistor

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE TO THE LED DRIVERS.

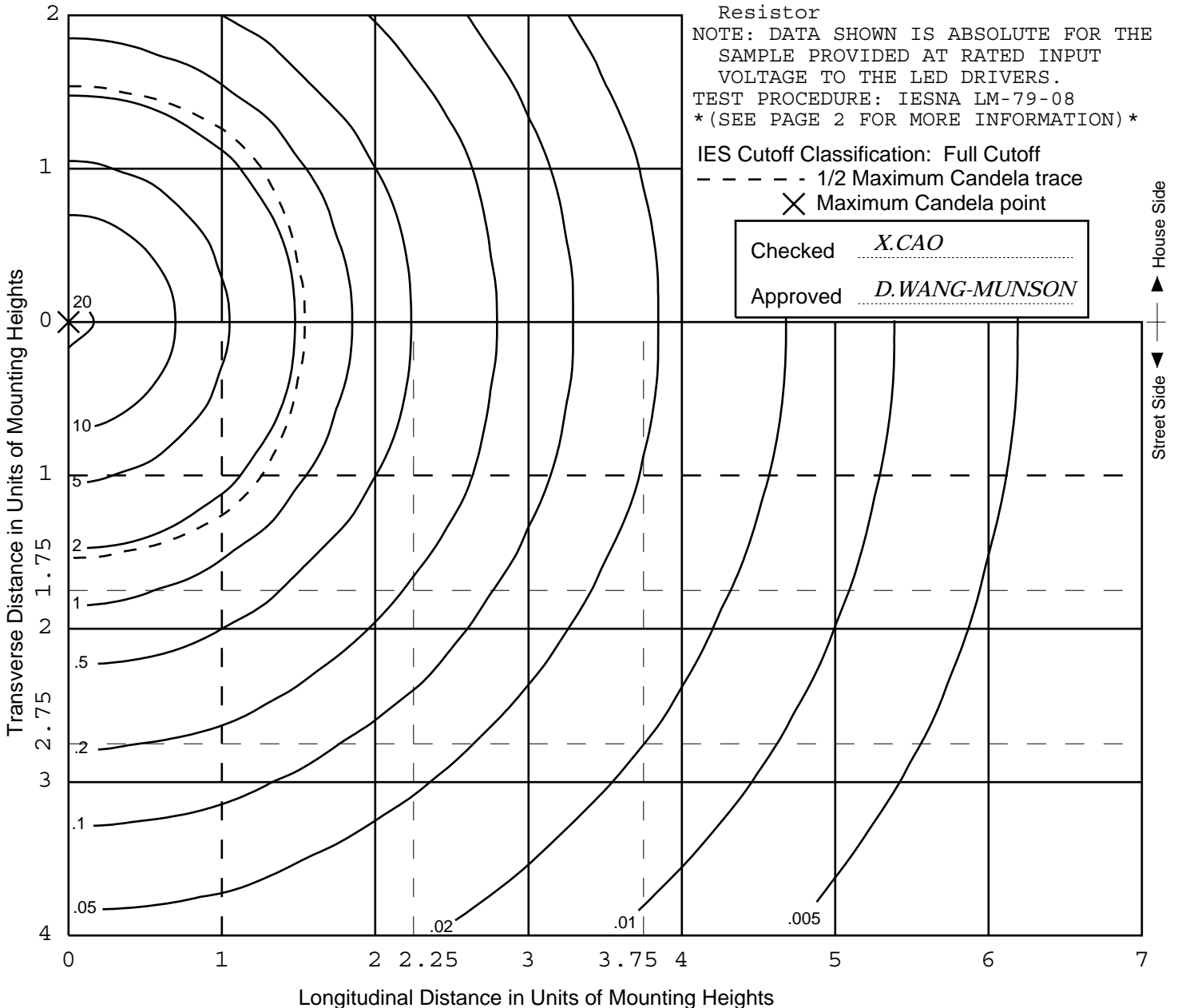
TEST PROCEDURE: IESNA LM-79-08

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

IES Cutoff Classification: Full Cutoff

--- 1/2 Maximum Candela trace

X Maximum Candela point



REPORT NUMBER: RAB00886  
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PREPARED FOR: RAB LIGHTING INC.

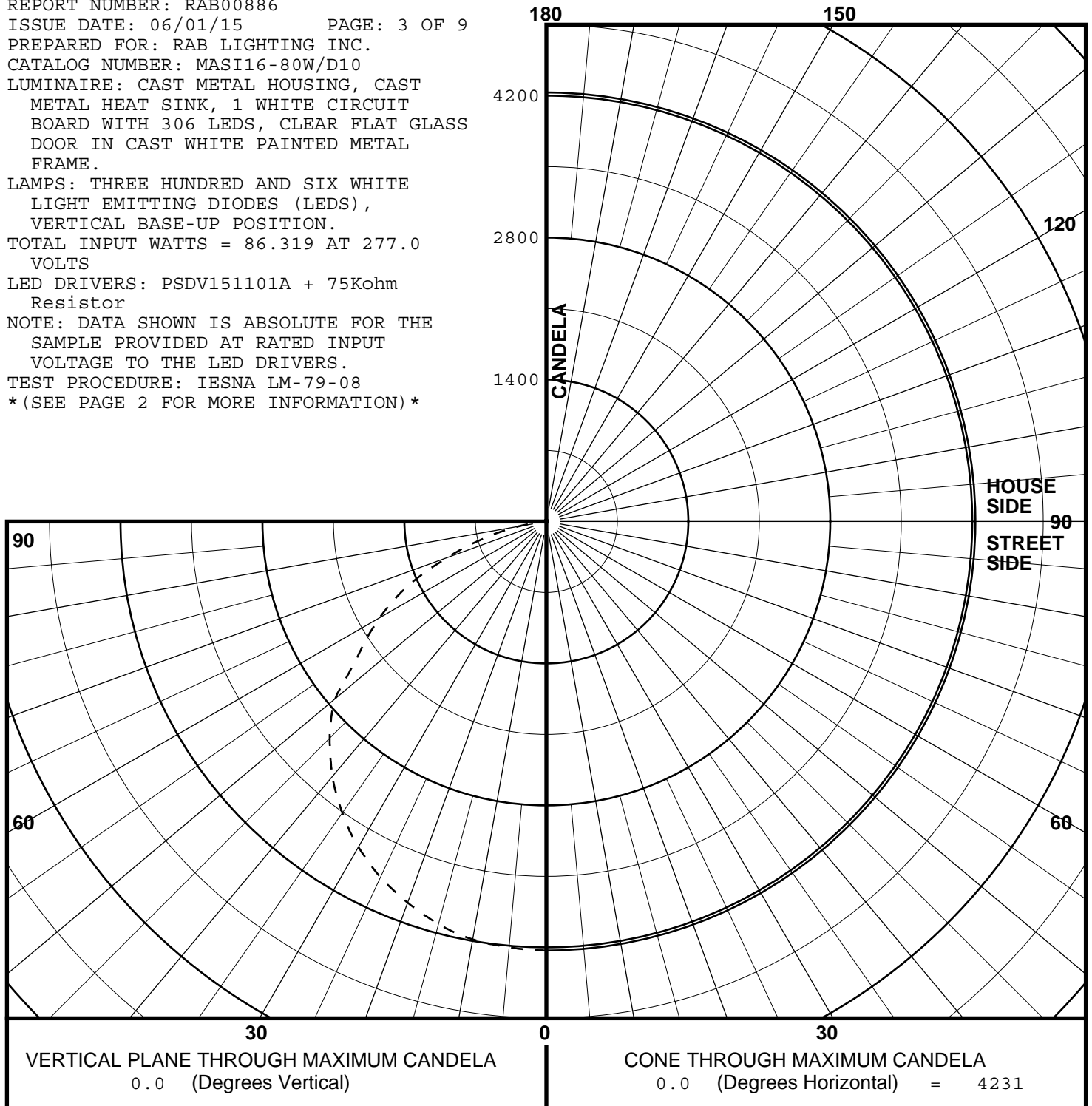
PAGE: 2 OF 9

ADDITIONAL INFORMATION

TEST DISTANCE = 28.25 FEET  
NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.  
ACCREDITED LABORATORY CODE 201058-0

## MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

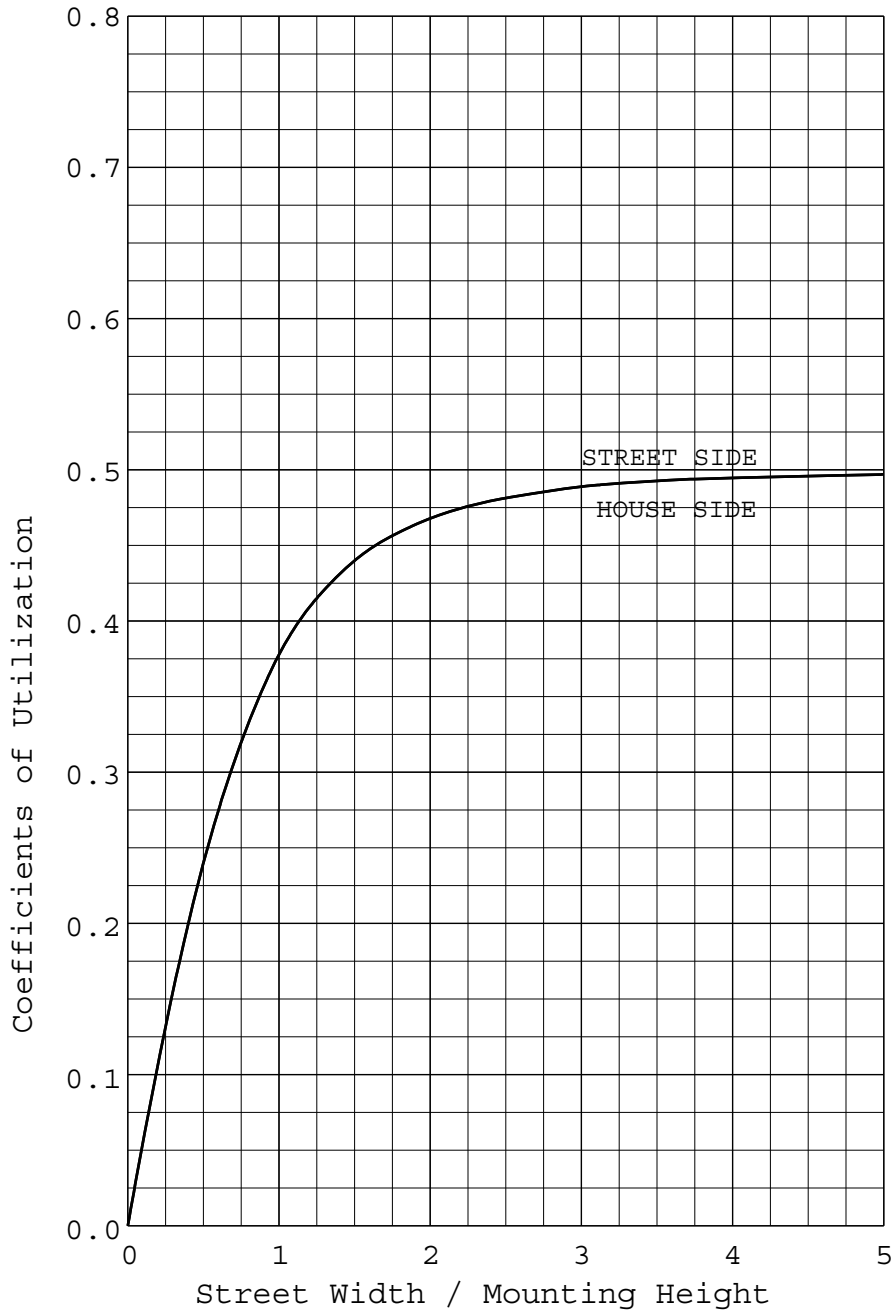
REPORT NUMBER: RAB00886  
 ISSUE DATE: 06/01/15 PAGE: 3 OF 9  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: MASI16-80W/D10  
 LUMINAIRE: CAST METAL HOUSING, CAST  
 METAL HEAT SINK, 1 WHITE CIRCUIT  
 BOARD WITH 306 LEDS, CLEAR FLAT GLASS  
 DOOR IN CAST WHITE PAINTED METAL  
 FRAME.  
 LAMPS: THREE HUNDRED AND SIX WHITE  
 LIGHT EMITTING DIODES (LEDS),  
 VERTICAL BASE-UP POSITION.  
 TOTAL INPUT WATTS = 86.319 AT 277.0  
 VOLTS  
 LED DRIVERS: PSDV151101A + 75Kohm  
 Resistor  
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
 SAMPLE PROVIDED AT RATED INPUT  
 VOLTAGE TO THE LED DRIVERS.  
 TEST PROCEDURE: IESNA LM-79-08  
 \*(SEE PAGE 2 FOR MORE INFORMATION)\*



REPORT NUMBER: RAB00886  
ISSUE DATE: 06/01/15  
PREPARED FOR: RAB LIGHTING INC.

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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	6104.	50.0
DOWNWARD HOUSE SIDE	6104.	50.0
DOWNWARD TOTAL	12207.	100.0
UPWARD STREET SIDE	0.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	0.	0.0
TOTAL FLUX	12207.	100.0
TOTAL INPUT WATTS = 86.3		
EFFICACY = 141.4 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: RAB00886  
 ISSUE DATE: 06/01/15  
 PREPARED FOR: RAB LIGHTING INC.

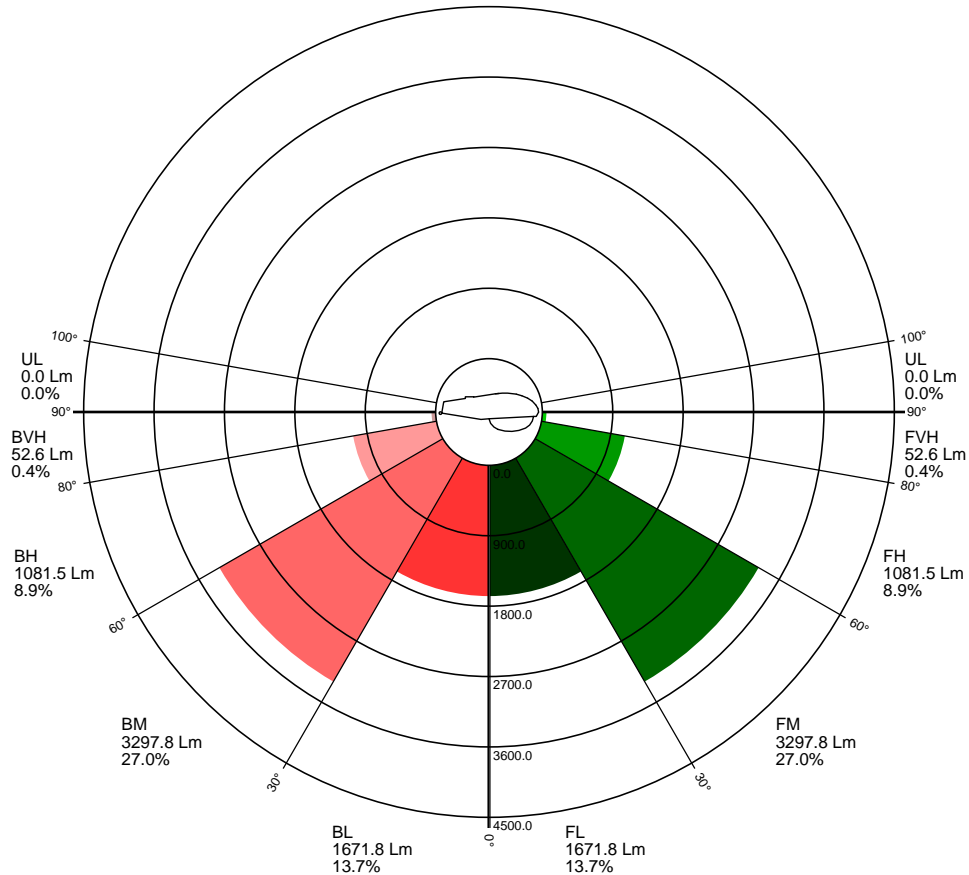
PAGE: 5 OF 9

BUG Rating:				Zone Ratings		
Zonal Summary				B	U	G
Forward		6104	50.0			
FL	(0° - 30°)	1671.8	13.7			
FM	(30° - 60°)	3297.8	27.0			
FH	(60° - 80°)	1081.5	8.9			G1
FVH	(80° - 90°)	52.6	0.4			G1
Backward		6104	50.0			
BL	(0° - 30°)	1671.8	13.7	B3		
BM	(30° - 60°)	3297.8	27.0	B3		
BH	(60° - 80°)	1081.5	8.9	B3		G1
BVH	(80° - 90°)	52.6	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		12207	100.0			

### Zonal Lumen Summary

(Linear scale)

UH  
0.0 Lm  
0.0%

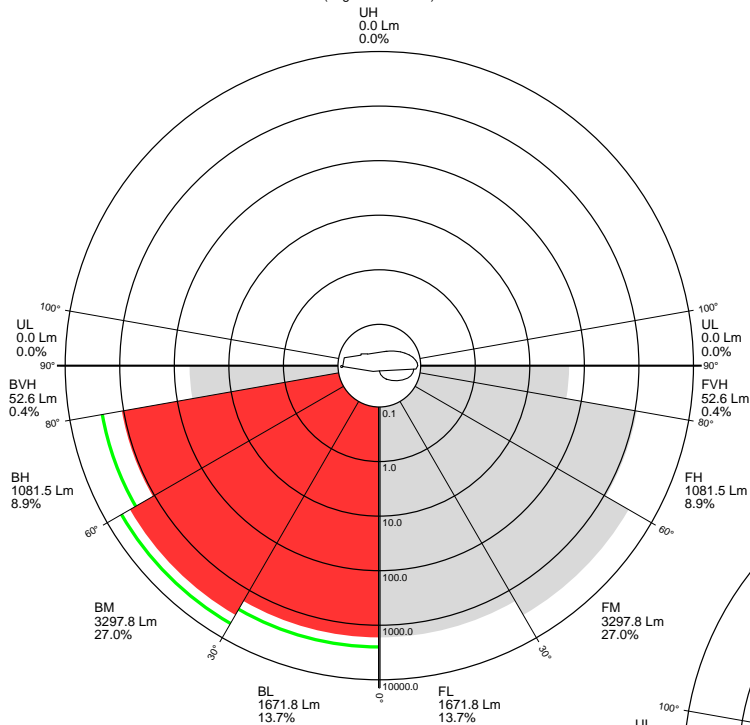


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 PREPARED FOR: RAB LIGHTING INC.

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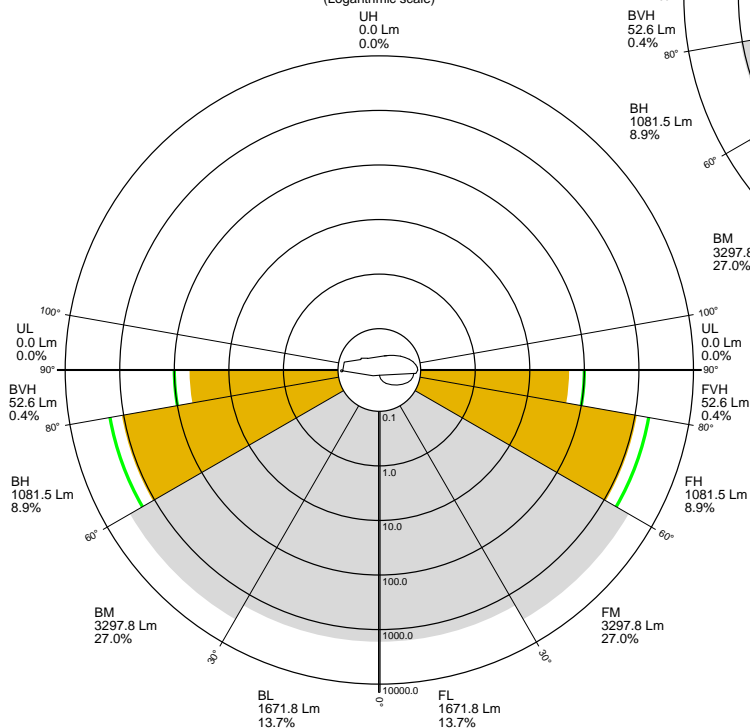
## Backlight Rating Details

(Logarithmic scale)



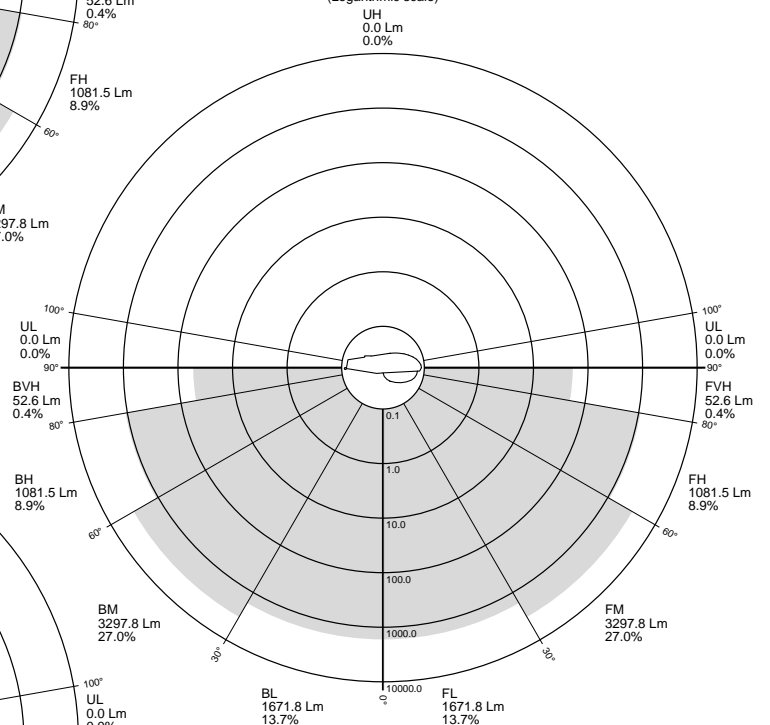
## Glare Rating Details

(Logarithmic scale)



## Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB00886  
 ISSUE DATE: 06/01/15  
 PREPARED FOR: RAB LIGHTING INC.

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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	24.	25.	26.	28.	29.	29.	28.	29.	26. 25.
	85.0	66.	67.	67.	67.	67.	68.	67.	69.	67. 67.
	82.5	148.	151.	152.	149.	149.	155.	150.	154.	154. 153.
	80.0	282.	284.	281.	277.	278.	275.	282.	288.	284. 286.
	77.5	455.	454.	456.	437.	442.	437.	449.	443.	455. 458.
	75.0	629.	634.	653.	628.	624.	618.	628.	633.	653. 647.
	72.5	837.	842.	844.	836.	816.	847.	821.	839.	842. 848.
V	70.0	1038.	1041.	1041.	1078.	1045.	1052.	1044.	1092.	1040. 1043.
E	67.5	1279.	1289.	1306.	1314.	1279.	1241.	1276.	1321.	1306. 1302.
R	65.0	1510.	1511.	1515.	1519.	1512.	1431.	1512.	1524.	1513. 1516.
T	62.5	1711.	1712.	1715.	1711.	1713.	1695.	1716.	1714.	1714. 1717.
I	60.0	1898.	1900.	1905.	1898.	1907.	1994.	1911.	1901.	1906. 1906.
C	57.5	2075.	2081.	2086.	2082.	2159.	2205.	2159.	2086.	2087. 2086.
A	55.0	2247.	2251.	2264.	2317.	2383.	2386.	2382.	2325.	2267. 2256.
L	52.5	2454.	2465.	2519.	2555.	2560.	2556.	2555.	2555.	2520. 2475.
	50.0	2717.	2718.	2727.	2727.	2720.	2717.	2720.	2721.	2718. 2722.
A	47.5	2879.	2879.	2881.	2876.	2873.	2869.	2876.	2876.	2876. 2880.
N	45.0	3022.	3021.	3022.	3017.	3020.	3014.	3019.	3022.	3019. 3020.
G	42.5	3153.	3154.	3156.	3156.	3150.	3148.	3155.	3156.	3153. 3153.
L	40.0	3282.	3281.	3283.	3277.	3281.	3277.	3280.	3281.	3279. 3279.
E	37.5	3399.	3397.	3403.	3397.	3399.	3398.	3395.	3400.	3398. 3396.
	35.0	3508.	3510.	3508.	3510.	3509.	3509.	3505.	3512.	3509. 3506.
	30.0	3707.	3704.	3710.	3707.	3706.	3710.	3705.	3707.	3704. 3702.
	25.0	3871.	3865.	3866.	3868.	3869.	3866.	3866.	3866.	3862. 3865.
	20.0	4000.	3997.	3996.	3997.	4001.	4001.	3999.	3995.	3996. 3997.
	15.0	4110.	4107.	4106.	4105.	4109.	4107.	4105.	4105.	4106. 4108.
	10.0	4185.	4181.	4180.	4177.	4178.	4177.	4175.	4177.	4179. 4180.
	5.0	4214.	4211.	4212.	4210.	4210.	4210.	4210.	4211.	4211. 4212.
	0.0<<	4231.	4231.	4231.	4231.	4231.	4231.	4231.	4231.	4231. 4231.

||  
 PLANE OF MAXIMUM CANDELA  
 |  
 CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB00886  
 ISSUE DATE: 06/01/15  
 PREPARED FOR: RAB LIGHTING INC.

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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.
	87.5	24.	25.	26.	29.	28.	29.	28.	26.	25.	24.
	85.0	66.	67.	67.	69.	67.	68.	67.	67.	67.	66.
	82.5	152.	153.	154.	154.	150.	155.	149.	149.	152.	148.
	80.0	284.	286.	284.	288.	282.	275.	278.	277.	281.	284.
	77.5	456.	458.	455.	443.	449.	437.	442.	437.	456.	454.
	75.0	639.	647.	653.	633.	628.	618.	624.	628.	653.	634.
	72.5	839.	848.	842.	839.	821.	847.	816.	836.	844.	842.
V	70.0	1040.	1043.	1040.	1092.	1044.	1052.	1045.	1078.	1041.	1038.
E	67.5	1290.	1302.	1306.	1321.	1276.	1241.	1279.	1314.	1306.	1289.
R	65.0	1510.	1516.	1513.	1524.	1512.	1431.	1512.	1519.	1515.	1511.
T	62.5	1710.	1717.	1714.	1714.	1716.	1695.	1713.	1711.	1715.	1712.
I	60.0	1899.	1906.	1906.	1901.	1911.	1994.	1907.	1898.	1905.	1900.
C	57.5	2078.	2086.	2087.	2086.	2159.	2205.	2159.	2082.	2086.	2081.
A	55.0	2251.	2256.	2267.	2325.	2382.	2386.	2383.	2317.	2264.	2251.
L	52.5	2469.	2475.	2520.	2555.	2555.	2556.	2560.	2555.	2519.	2465.
	50.0	2711.	2722.	2718.	2721.	2720.	2717.	2720.	2727.	2727.	2718.
A	47.5	2880.	2880.	2876.	2876.	2876.	2869.	2873.	2876.	2881.	2879.
N	45.0	3023.	3020.	3019.	3022.	3019.	3014.	3020.	3017.	3022.	3021.
G	42.5	3157.	3153.	3153.	3156.	3155.	3148.	3150.	3156.	3156.	3154.
L	40.0	3279.	3279.	3279.	3281.	3280.	3277.	3281.	3277.	3283.	3281.
E	37.5	3396.	3396.	3398.	3400.	3395.	3398.	3399.	3397.	3403.	3397.
	35.0	3507.	3506.	3509.	3512.	3505.	3509.	3509.	3510.	3508.	3510.
	30.0	3700.	3702.	3704.	3707.	3705.	3710.	3706.	3707.	3710.	3704.
	25.0	3865.	3865.	3862.	3866.	3866.	3866.	3869.	3868.	3866.	3865.
	20.0	3999.	3997.	3996.	3995.	3999.	4001.	4001.	3997.	3996.	3997.
	15.0	4108.	4108.	4106.	4105.	4105.	4107.	4109.	4105.	4106.	4107.
	10.0	4183.	4180.	4179.	4177.	4175.	4177.	4178.	4177.	4180.	4181.
	5.0	4213.	4212.	4211.	4211.	4210.	4210.	4210.	4210.	4212.	4211.
	0.0<<	4231.	4231.	4231.	4231.	4231.	4231.	4231.	4231.	4231.	4231.

CONE OF MAXIMUM CANDELA



REPORT NUMBER: RAB00886  
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### 5-DEGREE ZONAL LUMEN SUMMARY

0- 5	101
5- 10	300
10- 15	492
15- 20	668
20- 25	825
25- 30	958
30- 35	1063
35- 40	1133
40- 45	1167
45- 50	1161
50- 55	1096
55- 60	977
60- 65	831
65- 70	651
70- 75	439
75- 80	242
80- 85	89
85- 90	17

### 10-DEGREE ZONAL LUMEN SUMMARY

0- 10	401
0- 20	1560
0- 30	3344
0- 40	5539
0- 50	7866
0- 60	9939
0- 70	11421
0- 80	12102
0- 90	12207

REPORT NUMBER: RAB00919  
DATE: 6/1/2015  
PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: MASI16-80W/D10

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 + 75Kohm Resistor

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 X.CAO

Approved D.WANG-MUNSON  
Lighting Engineer

REPORT NUMBER: RAB00919  
 DATE: 6/1/2015  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: MASI16-80W/D10

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### RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	12207 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3423
Chromaticity Ordinate y	0.3507
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2098
Chromaticity Ordinate v'	0.4838
Correlated Color Temp CCT (K)	5107
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	36957 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.724
Input Power (Watts)	86.1
Input Power Factor (%)	99.1
Input Current THD (%)	9.9
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	141.8
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.341
Input Power (Watts)	86.3
Input Power Factor (%)	91.4
Input Current THD (%)	20.5
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	74
R1 Light greyish red	73
R2 Dark greyish yellow	78
R3 Strong yellowish green	82
R4 Moderate yellowish green	76
R5 Light bluish green	74
R6 Light blue	71
R7 Light violet	82
R8 Light reddish purple	60
R9 Strong red	-18
R10 Strong yellow	48
R11 Strong green	74
R12 Strong blue	47
R13 Light yellowish pink (skin)	73
R14 Moderate olive green (leaf)	90

### \*NOTE:

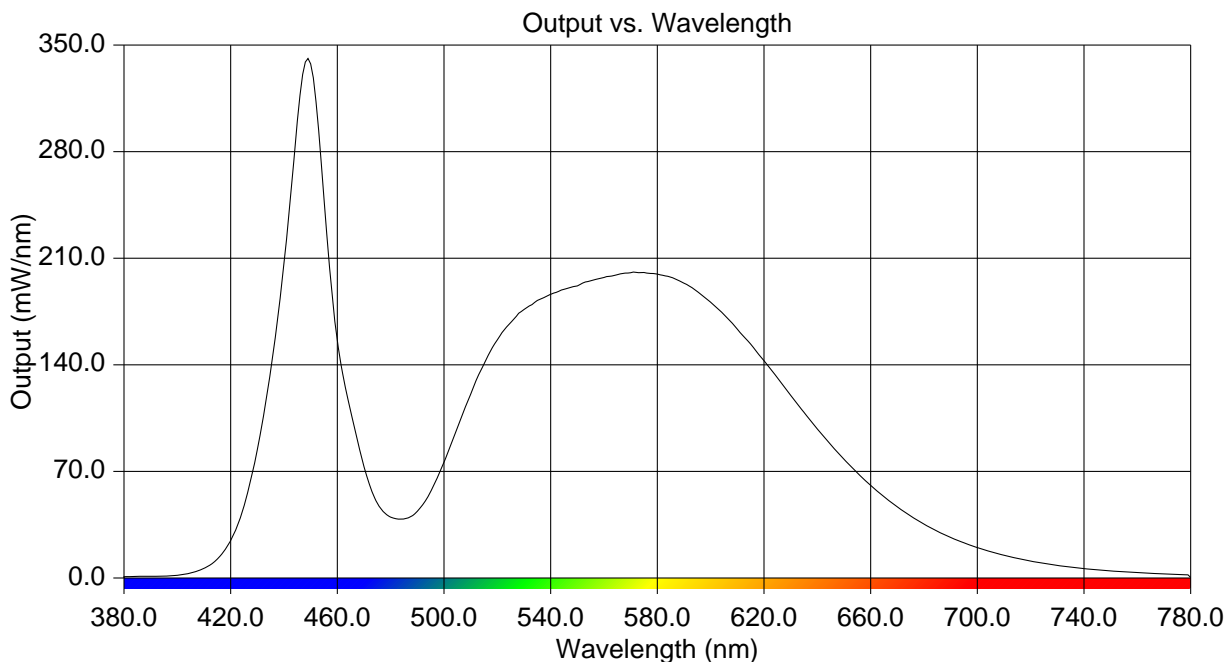
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even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

REPORT NUMBER: RAB00919  
 DATE: 6/1/2015  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: MASI16-80W/D10

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### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.846	515	140.401	650	77.974
385	0.912	520	156.268	655	68.991
390	1.070	525	167.401	660	60.838
395	1.309	530	176.194	665	53.338
400	1.908	535	182.141	670	46.651
405	3.216	540	186.121	675	40.624
410	6.194	545	189.522	680	35.393
415	12.431	550	191.663	685	30.659
420	24.597	555	194.940	690	26.571
425	47.340	560	197.214	695	23.096
430	84.275	565	199.148	700	19.938
435	136.582	570	200.334	705	17.246
440	206.147	575	200.491	710	14.882
445	299.904	580	199.315	715	12.864
450	337.377	585	197.575	720	11.067
455	248.862	590	193.454	725	9.559
460	155.776	595	188.056	730	8.273
465	109.395	600	180.804	735	7.147
470	73.027	605	172.889	740	6.193
475	49.057	610	163.304	745	5.369
480	39.932	615	153.499	750	4.664
485	38.749	620	142.418	755	4.038
490	43.780	625	131.724	760	3.507
495	56.671	630	119.931	765	3.036
500	76.259	635	108.713	770	2.648
505	98.208	640	97.798	775	2.318
510	120.586	645	87.498	780	0.351



REPORT NUMBER: RAB00919  
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## CIE Chromaticity Diagram

