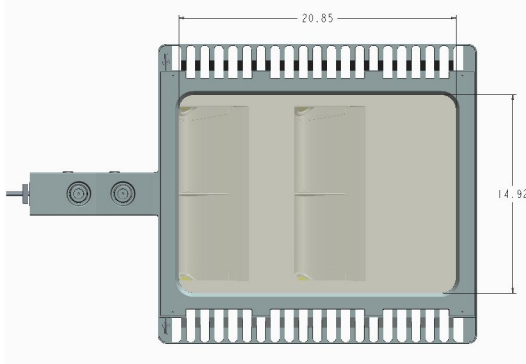


## ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 35 foot mounting height.



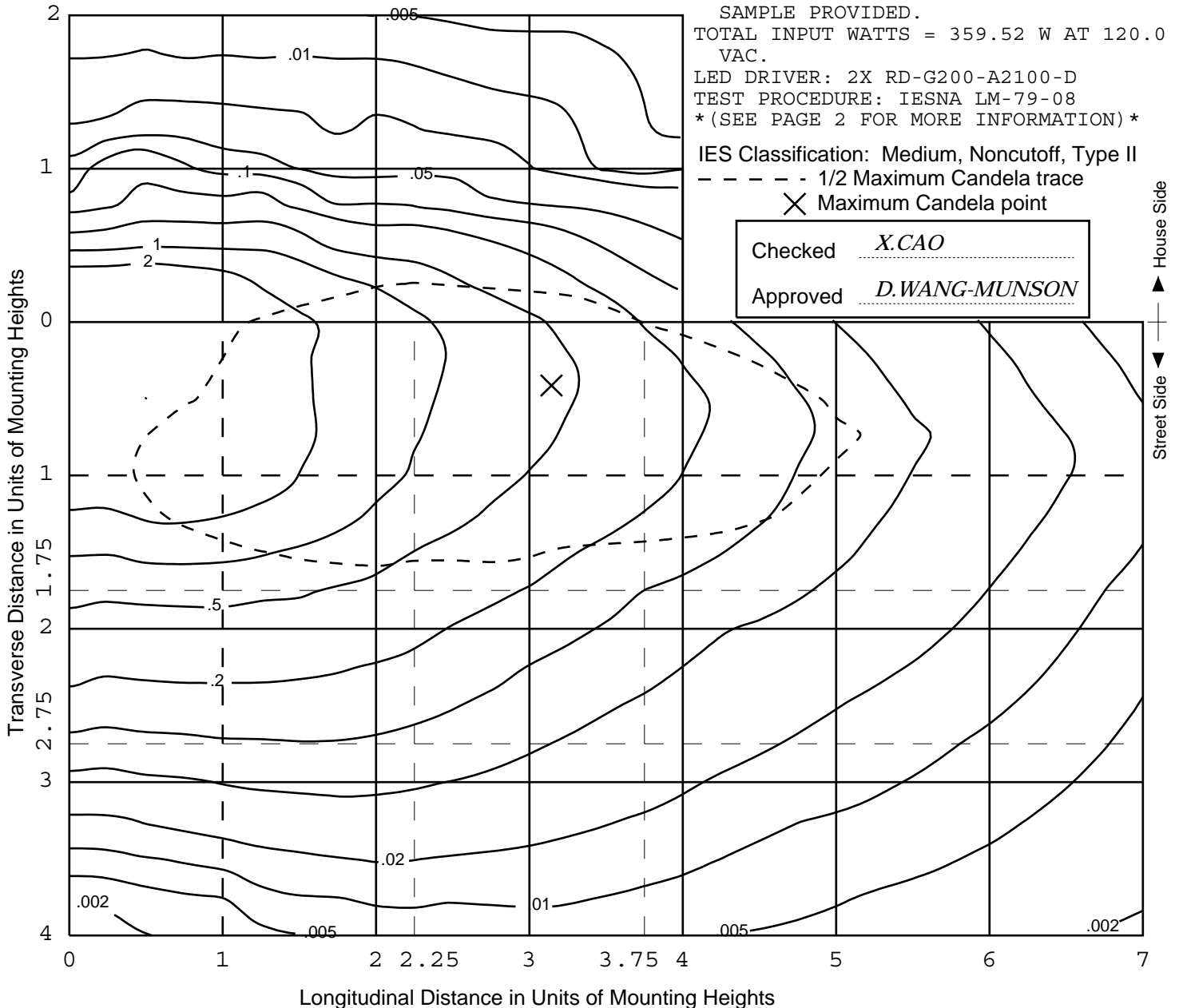
REPORT NUMBER: RAB01585  
 ISSUE DATE: 01/11/16 PAGE: 1 OF 9  
 DATE SAMPLE TESTED: 01/11/16  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: ALED2T360/D10 -  
 ALED2T360SF/D10 - WPLED2T360/D10 -  
 WPLED2T360FX/D10 (TYPE II)  
 LUMINAIRE: CAST FINNED METAL HOUSING, 4  
 CHIP ON BOARD LIGHT EMITTING DIODES,  
 MOLDED PLASTIC REFLECTOR WITH  
 SPECULAR FINISH, CLEAR GLASS LENS IN  
 CAST BRONZE PAINTED METAL FRAME.  
 LAMPS: FOUR WHITE LIGHT EMITTING DIODES  
 (LEDs)

NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
 SAMPLE PROVIDED.  
 TOTAL INPUT WATTS = 359.52 W AT 120.0  
 VAC.

LED DRIVER: 2X RD-G200-A2100-D  
 TEST PROCEDURE: IESNA LM-79-08  
 \*(SEE PAGE 2 FOR MORE INFORMATION)\*

IES Classification: Medium, Noncutoff, Type II

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



REPORT NUMBER: RAB01585  
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PREPARED FOR: RAB LIGHTING INC.

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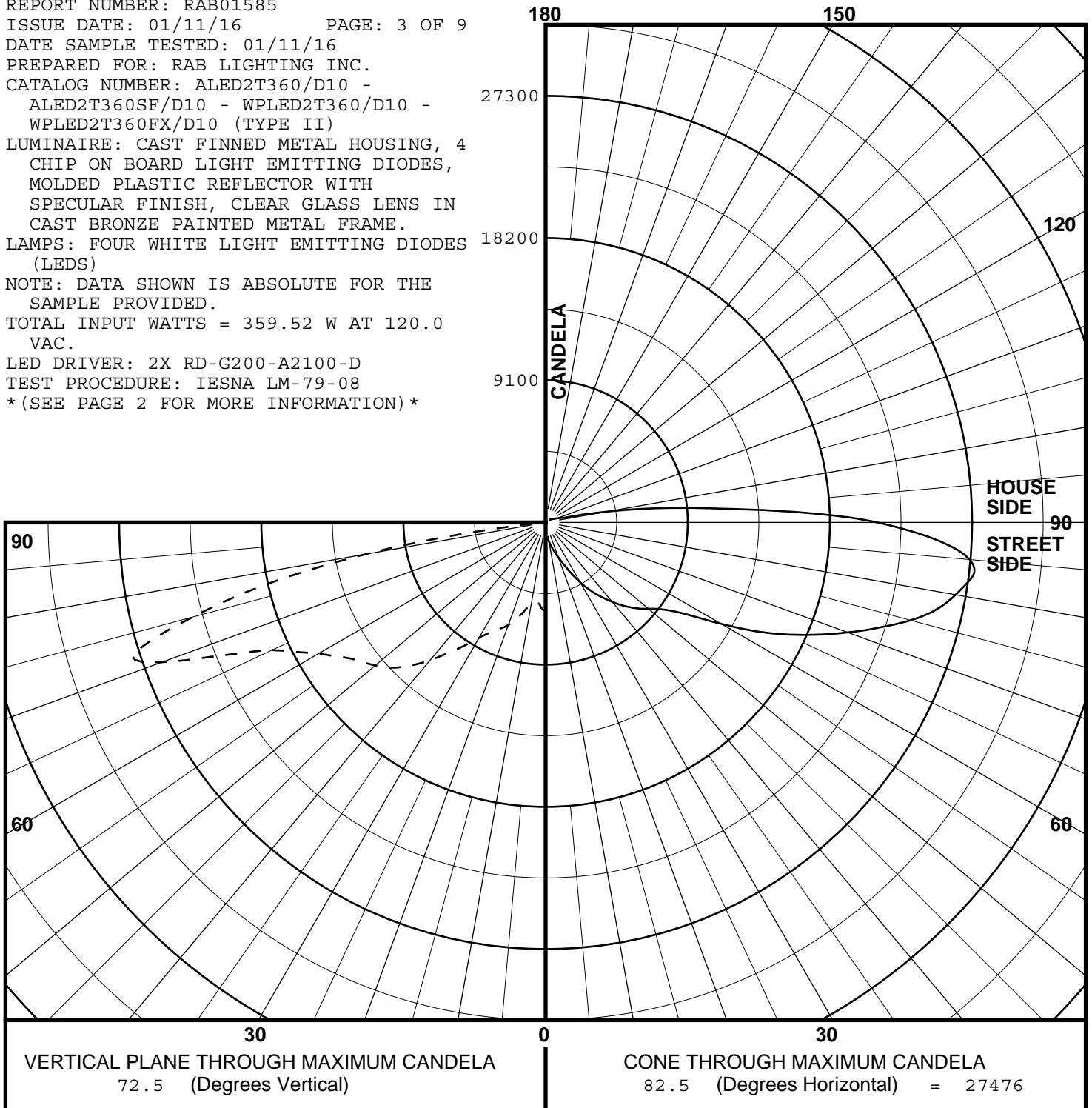
ADDITIONAL INFORMATION

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

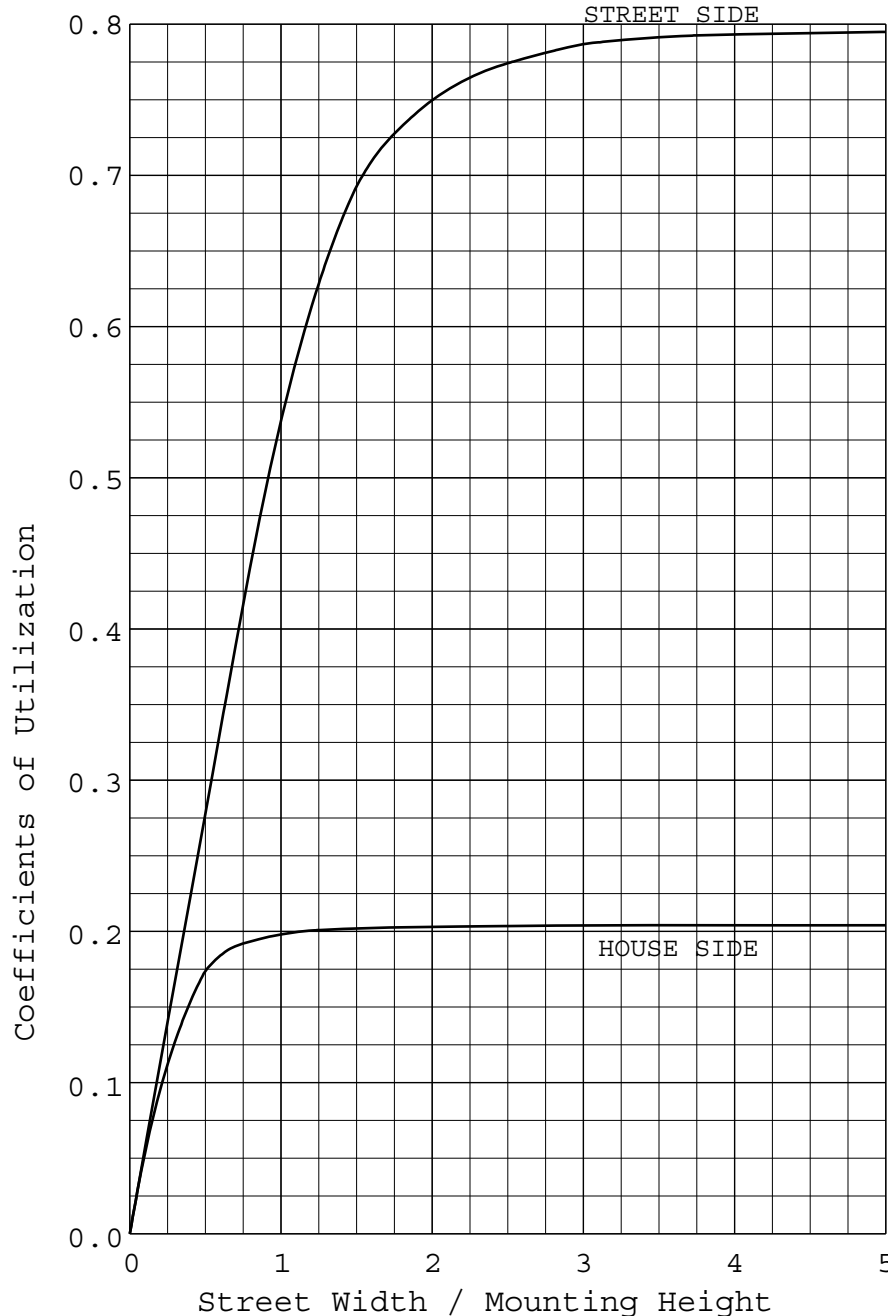
REPORT NUMBER: RAB01585  
 ISSUE DATE: 01/11/16 PAGE: 3 OF 9  
 DATE SAMPLE TESTED: 01/11/16  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: ALED2T360/D10 -  
 ALED2T360SF/D10 - WPLED2T360/D10 -  
 WPLED2T360FX/D10 (TYPE II)  
 LUMINAIRE: CAST FINNED METAL HOUSING, 4  
 CHIP ON BOARD LIGHT EMITTING DIODES,  
 MOLDED PLASTIC REFLECTOR WITH  
 SPECULAR FINISH, CLEAR GLASS LENS IN  
 CAST BRONZE PAINTED METAL FRAME.  
 LAMPS: FOUR WHITE LIGHT EMITTING DIODES (LEDS)  
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
 SAMPLE PROVIDED.  
 TOTAL INPUT WATTS = 359.52 W AT 120.0  
 VAC.  
 LED DRIVER: 2X RD-G200-A2100-D  
 TEST PROCEDURE: IESNA LM-79-08  
 \*(SEE PAGE 2 FOR MORE INFORMATION)\*



REPORT NUMBER: RAB01585  
ISSUE DATE: 01/11/16  
PREPARED FOR: RAB LIGHTING INC.

PAGE: 4 OF 9  
DATE SAMPLE TESTED: 01/11/16

## COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	29155.	79.5
DOWNWARD HOUSE SIDE	7509.	20.5
DOWNWARD TOTAL	36664.	100.0
UPWARD STREET SIDE	0.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	0.	0.0
TOTAL FLUX	36664.	100.0
TOTAL INPUT WATTS = 359.5		
EFFICACY = 102.0 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: RAB01585  
 ISSUE DATE: 01/11/16  
 PREPARED FOR: RAB LIGHTING INC.

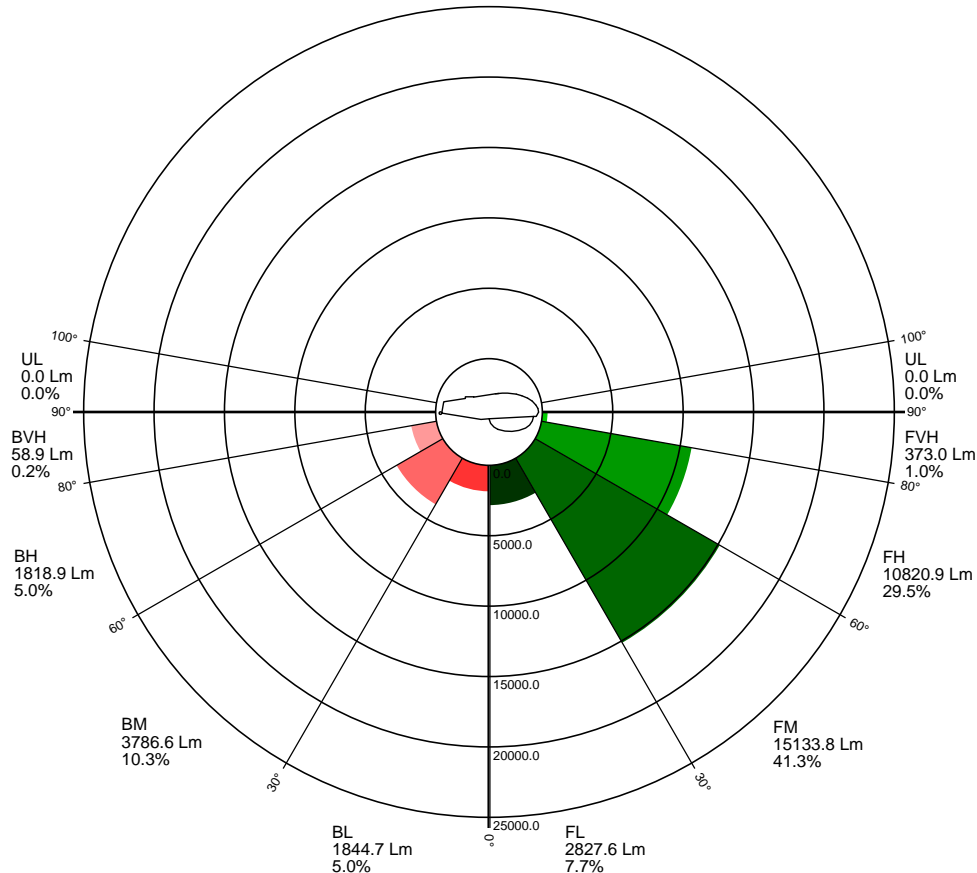
PAGE: 5 OF 9  
 DATE SAMPLE TESTED: 01/11/16

BUG Rating:				B3 U0 G4		
Zonal Summary		Lumens	% of Fixture	Zone Ratings		
				B	U	G
Forward		29155	79.5			
FL	(0° - 30°)	2827.6	7.7			
FM	(30° - 60°)	15133.8	41.3			
FH	(60° - 80°)	10820.9	29.5			G4
FVH	(80° - 90°)	373.0	1.0			G3
Backward		7509	20.5			
BL	(0° - 30°)	1844.7	5.0	B3		
BM	(30° - 60°)	3786.6	10.3	B3		
BH	(60° - 80°)	1818.9	5.0	B3		G3
BVH	(80° - 90°)	58.9	0.2			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		36664	100.0			

### Zonal Lumen Summary

(Linear scale)

UH  
0.0 Lm  
0.0%

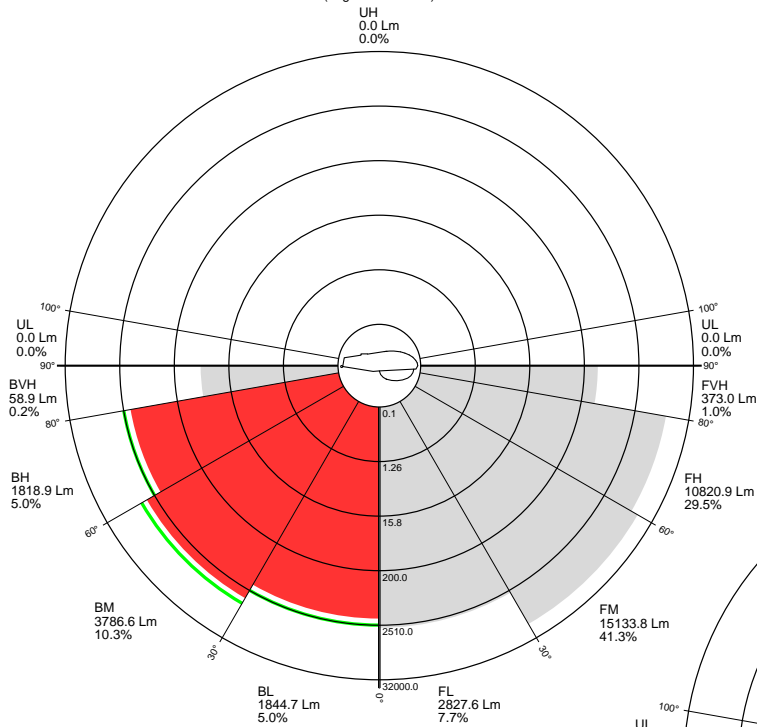


REPORT NUMBER: RAB01585  
ISSUE DATE: 01/11/16  
PREPARED FOR: RAB LIGHTING INC.

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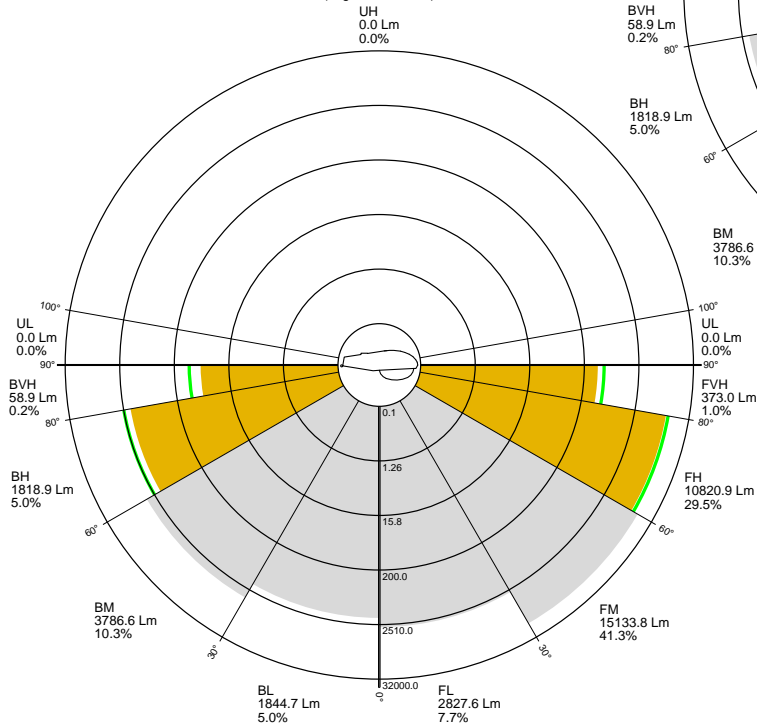
### Backlight Rating Details

(Logarithmic scale)



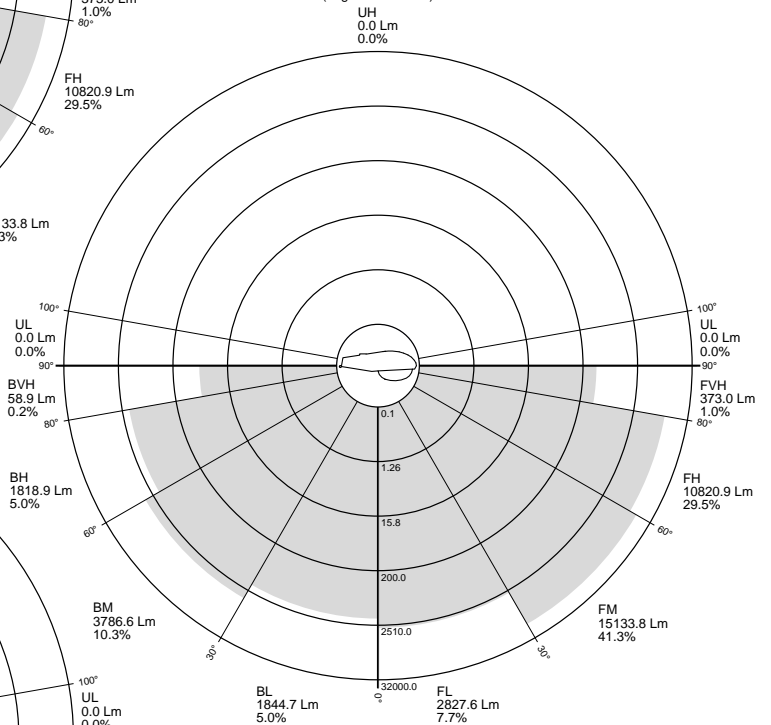
### Glare Rating Details

(Logarithmic scale)



### Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB01585  
 ISSUE DATE: 01/11/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 7 OF 9  
 DATE SAMPLE TESTED: 01/11/16

### CANDELA TABULATION

	STREET SIDE	LATERAL ANGLE									
		0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	82.5 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	36.	33.	34.	39.	44.	38.	40.	37.	89.	154. 135.
	85.0	51.	40.	42.	46.	60.	59.	62.	354.	394.	597. 442.
V	82.5	56.	47.	51.	55.	78.	138.	818.	1822.	2497.	4463. 3163.
E	80.0	66.	55.	57.	68.	310.	1163.	2432.	4789.	8768.	11702. 9066.
R	77.5	81.	66.	77.	410.	1395.	3104.	5147.	7645.	15854.	18351. 15332.
T	75.0	142.	177.	491.	1645.	3520.	5609.	7418.	11719.	21063.	23397. 20883.
I	72.5<<	933.	993.	1754.	3253.	5574.	7694.	9858.	16972.	24191.	27476. 27249.
C	70.0	2413.	2299.	3188.	4772.	6699.	9191.	13100.	20219.	24185.	26148. 26495.
A	67.5	4120.	3660.	4451.	5644.	7585.	11231.	17227.	21679.	21791.	22175. 22117.
L	65.0	4843.	4286.	4997.	6367.	8846.	14204.	19938.	21996.	19767.	19322. 20472.
	62.5	5328.	4812.	5663.	7525.	11093.	17175.	21219.	21503.	18462.	17945. 18956.
A	60.0	6156.	5629.	6846.	9333.	13928.	18916.	21455.	20402.	17474.	16788. 17074.
N	57.5	6945.	6460.	8301.	11618.	15915.	19821.	21055.	19052.	16705.	15943. 15948.
G	55.0	8131.	7584.	9281.	13396.	16932.	19881.	20034.	17639.	15856.	15202. 15057.
L	52.5	9090.	8593.	9972.	14359.	17198.	19415.	18505.	16317.	15139.	14701. 14619.
E	50.0	9758.	9428.	10261.	14633.	16860.	18124.	17011.	15141.	14585.	14233. 14152.
	47.5	10609.	10258.	10446.	14684.	16292.	16599.	15662.	14236.	14150.	13736. 13531.
	45.0	11041.	10789.	11201.	14137.	15152.	14925.	14397.	13643.	13730.	13086. 12845.
	42.5	10896.	10652.	11564.	14064.	13939.	13599.	13397.	13228.	13079.	12325. 12088.
	40.0	10550.	10282.	11014.	12913.	13111.	12817.	12800.	12789.	12313.	11501. 11288.
	37.5	9861.	9702.	9946.	11389.	12121.	12054.	12164.	12091.	11441.	10651. 10477.
	35.0	8975.	8861.	8923.	9974.	10936.	11178.	11349.	11161.	10512.	9903. 9720.
	30.0	7252.	7236.	7373.	7812.	9069.	9272.	9519.	9285.	8827.	8526. 8476.
	25.0	6436.	6362.	6392.	6387.	7228.	7614.	7944.	7796.	7608.	7632. 7687.
	20.0	6284.	6168.	5872.	5848.	5983.	6476.	6586.	6766.	6918.	6979. 6994.
	15.0	6419.	6295.	5846.	5782.	5788.	5681.	5815.	5874.	6024.	6092. 6096.
	10.0	6427.	6355.	5968.	5714.	5658.	5607.	5550.	5505.	5447.	5344. 5335.
	5.0	6130.	6121.	5983.	5834.	5645.	5485.	5369.	5284.	5266.	5197. 5168.
	0.0	5723.	5723.	5723.	5723.	5723.	5723.	5723.	5723.	5723.	5723. 5723.

||  
 PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB01585  
 ISSUE DATE: 01/11/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 9  
 DATE SAMPLE TESTED: 01/11/16

### 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	83.	41.	39.	31.	28.	31.	36.	37.	34.	31.	31.
85.0	278.	87.	113.	34.	29.	30.	36.	38.	35.	33.	33.
V 82.5	1707.	487.	158.	49.	32.	31.	37.	40.	37.	35.	35.
E 80.0	6074.	2352.	197.	63.	44.	33.	38.	41.	40.	38.	38.
R 77.5	9813.	4542.	339.	248.	96.	44.	40.	43.	42.	41.	41.
T 75.0	13627.	6796.	482.	568.	185.	79.	48.	47.	46.	44.	45.
I 72.5	<21251.	10425.	1115.	544.	265.	121.	61.	58.	55.	48.	49.
C 70.0	22558.	12799.	2218.	604.	359.	173.	87.	71.	67.	54.	56.
A 67.5	19687.	14871.	2884.	676.	418.	225.	115.	89.	80.	61.	61.
L 65.0	20808.	16248.	2992.	660.	300.	252.	144.	105.	98.	71.	76.
62.5	20208.	15256.	3847.	627.	346.	276.	180.	114.	108.	81.	92.
A 60.0	17188.	14643.	5705.	1337.	519.	239.	191.	125.	119.	92.	95.
N 57.5	16029.	14220.	6979.	2738.	721.	329.	178.	139.	126.	97.	99.
G 55.0	15237.	14069.	7652.	3713.	866.	467.	341.	137.	125.	97.	102.
L 52.5	14320.	13170.	7834.	3757.	1247.	561.	540.	281.	120.	91.	105.
E 50.0	14078.	13057.	8437.	3617.	1627.	535.	579.	498.	178.	98.	109.
47.5	13642.	13165.	9071.	3867.	1854.	858.	393.	793.	513.	261.	199.
45.0	12693.	12334.	9115.	4268.	2066.	1215.	474.	494.	482.	388.	222.
42.5	11830.	11342.	8800.	4722.	2284.	1328.	766.	638.	308.	321.	161.
40.0	11013.	10666.	8629.	5110.	2581.	1562.	935.	787.	336.	243.	128.
37.5	10292.	10069.	8497.	5488.	2933.	1798.	1177.	693.	379.	223.	227.
35.0	9645.	9479.	8391.	5820.	3374.	2061.	1479.	848.	428.	454.	478.
30.0	8533.	8503.	7837.	6183.	4300.	2838.	1943.	1158.	694.	983.	1047.
25.0	7713.	7700.	7357.	6468.	5081.	3735.	2580.	1577.	974.	1163.	1230.
20.0	7100.	7065.	6793.	6285.	5444.	4454.	3337.	2314.	1793.	1786.	1819.
15.0	6121.	6077.	5937.	5606.	5290.	4678.	4001.	3452.	3397.	3548.	3689.
10.0	5302.	5246.	5085.	4962.	4852.	4746.	4654.	4708.	5000.	5288.	5378.
5.0	5156.	5136.	5033.	5062.	5041.	5107.	5235.	5383.	5536.	5634.	5646.
0.0	5723.	5723.	5723.	5723.	5723.	5723.	5723.	5723.	5723.	5723.	5723.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB01585  
 ISSUE DATE: 01/11/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 9 OF 9  
 DATE SAMPLE TESTED: 01/11/16

### 5-DEGREE ZONAL LUMEN SUMMARY

0- 5	133
5- 10	383
10- 15	629
15- 20	878
20- 25	1154
25- 30	1495
30- 35	1931
35- 40	2461
40- 45	3007
45- 50	3507
50- 55	3907
55- 60	4109
60- 65	4012
65- 70	3811
70- 75	3148
75- 80	1669
80- 85	404
85- 90	28
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	516
0- 20	2023
0- 30	4672
0- 40	9064
0- 50	15577
0- 60	23593
0- 70	31415
0- 80	36232
0- 90	36664
0-100	36664
0-110	36664
0-120	36664
0-130	36664
0-140	36664
0-150	36664
0-160	36664
0-170	36664
0-180	36664

REPORT NUMBER: RAB01588  
 DATE: 1/8/2016  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: ALED2T360/D10 - ALED2T360SF/D10 - WPLED2T360/D10 - WPLED2T360FX/D10 (TYPE II)  
 ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

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LUMINAIRE: CAST FINNED METAL HOUSING, 4 CHIP ON BOARD LIGHT EMITTING DIODES, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, CLEAR GLASS LENS IN CAST BRONZE PAINTED METAL FRAME.

LAMP: FOUR WHITE LIGHT EMITTING DIODES (LEDS)

DRIVER: 2X RD-G200-A2100-D

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:	GWINSTEK AC POWER SOURCE APS-7100	Calibration Due:
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	N/A
	OCEAN OPTICS QE65PRO Spectroradiometer	3/9/16
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	1/5/17

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 (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

REPORT NUMBER: RAB01588  
 DATE: 1/8/2016  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: ALED2T360/D10 - ALED2T360SF/D10 - WPLED2T360/D10 - WPLED2T360FX/D10 (TYPE II)

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### RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	36664 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3410
Chromaticity Ordinate y	0.3594
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2057
Chromaticity Ordinate v'	0.4878
Correlated Color Temp CCT (K)	5178
ANSI C78.377-2008 Duv	0.006
Total Radiant Flux (milliWatts)	108177 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	3.00
Input Power (Watts)	359.5
Input Power Factor (%)	99.8
Input Current THD (%)	5.9
Input Voltage THD (%)	0.6
EFFICACY (Lumens/Watt)	
	102.0
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	1.32
Input Power (Watts)	350.5
Input Power Factor (%)	95.8
Input Current THD (%)	8.9
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	71
R1 Light greyish red	68
R2 Dark greyish yellow	75
R3 Strong yellowish green	80
R4 Moderate yellowish green	72
R5 Light bluish green	69
R6 Light blue	67
R7 Light violet	80
R8 Light reddish purple	55
R9 Strong red	-38
R10 Strong yellow	41
R11 Strong green	69
R12 Strong blue	43
R13 Light yellowish pink (skin)	68
R14 Moderate olive green (leaf)	89

### \*NOTE:

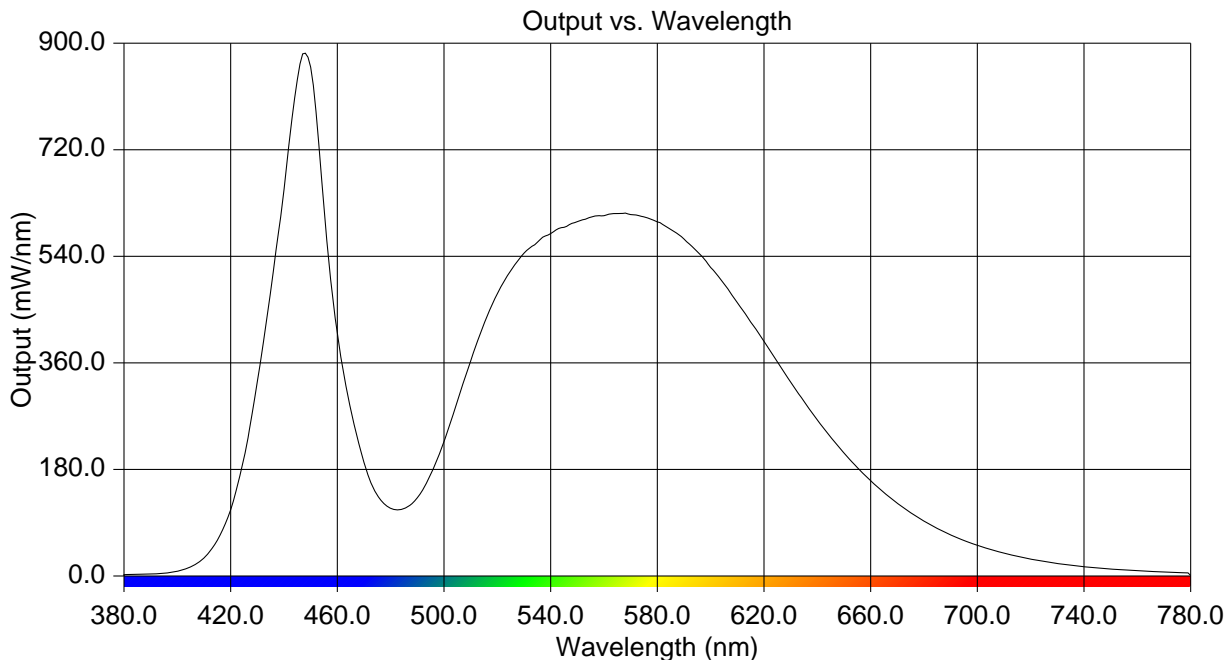
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	2.179	515	425.528	650	207.596
385	2.652	520	476.493	655	182.936
390	3.314	525	515.417	660	160.974
395	4.742	530	544.763	665	140.731
400	8.107	535	563.096	670	122.799
405	15.207	540	577.838	675	106.629
410	30.624	545	588.369	680	92.773
415	60.266	550	597.996	685	80.213
420	111.708	555	605.701	690	69.265
425	198.882	560	607.996	695	59.909
430	328.193	565	611.406	700	51.752
435	480.253	570	609.895	705	44.616
440	650.635	575	606.098	710	38.488
445	837.586	580	597.567	715	33.110
450	858.727	585	584.925	720	28.585
455	625.085	590	568.652	725	24.584
460	406.101	595	547.266	730	21.181
465	282.858	600	520.613	735	18.148
470	191.510	605	493.423	740	15.672
475	136.148	610	461.257	745	13.604
480	114.452	615	428.600	750	11.795
485	113.385	620	395.633	755	10.173
490	132.042	625	361.917	760	8.830
495	170.852	630	326.469	765	7.721
500	227.696	635	294.712	770	6.670
505	294.000	640	263.627	775	5.822
510	362.777	645	234.281	780	0.890



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## CIE Chromaticity Diagram

