

REPORT NUMBER: RAB04504

PAGE: 1 OF 10

ISSUE DATE: 09/21/18

DATE SAMPLE TESTED: 07/31/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKS11L

LUMINAIRE: CAST BROWN PAINTED METAL HOUSING, FORMED SPECULAR PAINTED REFLECTOR, 1 WHITE CIRCUIT BOARD WITH 15 LEDS, MOLDED FROSTED PLASTIC LENS.

LAMPS: FIFTEEN WHITE LIGHT EMITTING DIODES (LEDS), TILTED 30-DEGREE FROM VERTICAL BASE-UP POSITION.

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.

ABSOLUTE: NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

WATT: TOTAL INPUT WATTS = 9.35 W AT 277.0 VAC.

LED DRIVER: LED DRIVER: RD-08-EGH-A0450

PROCEDURE: TEST PROCEDURE: IESNA LM-79-08

NOTE: LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE
AMBIENT: 24.9

NVLAP LAB CODE: ACCREDITED LABORATORY CODE 201058-0



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Checked X.CAO

Approved D.WANG-MUNSON

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ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

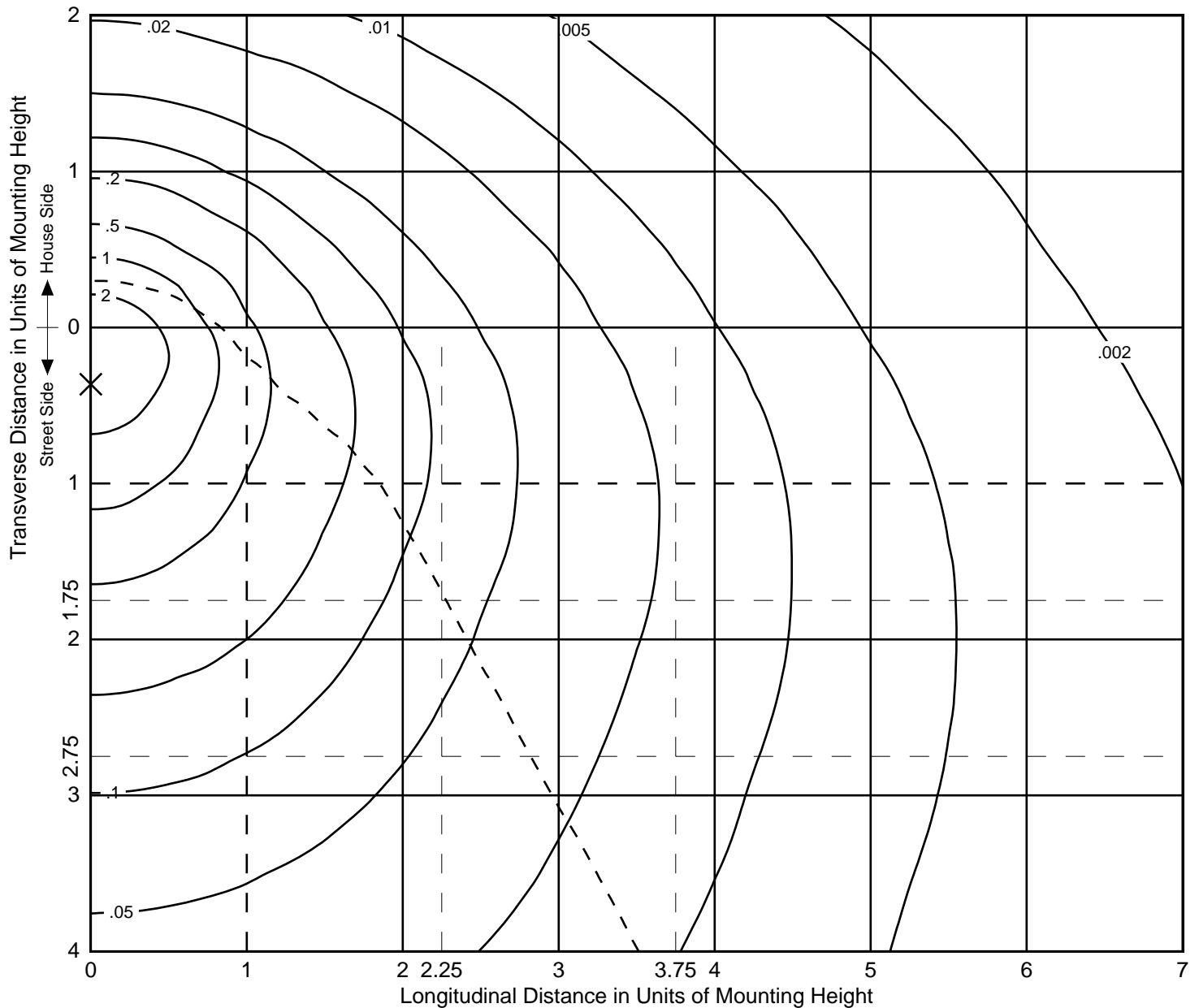
Values based on 10-foot mounting height

IES Classification: (does not classify)

Cutoff Classification (deprecated): Noncutoff

--- 1/2 Maximum Candela trace

× Maximum Candela point



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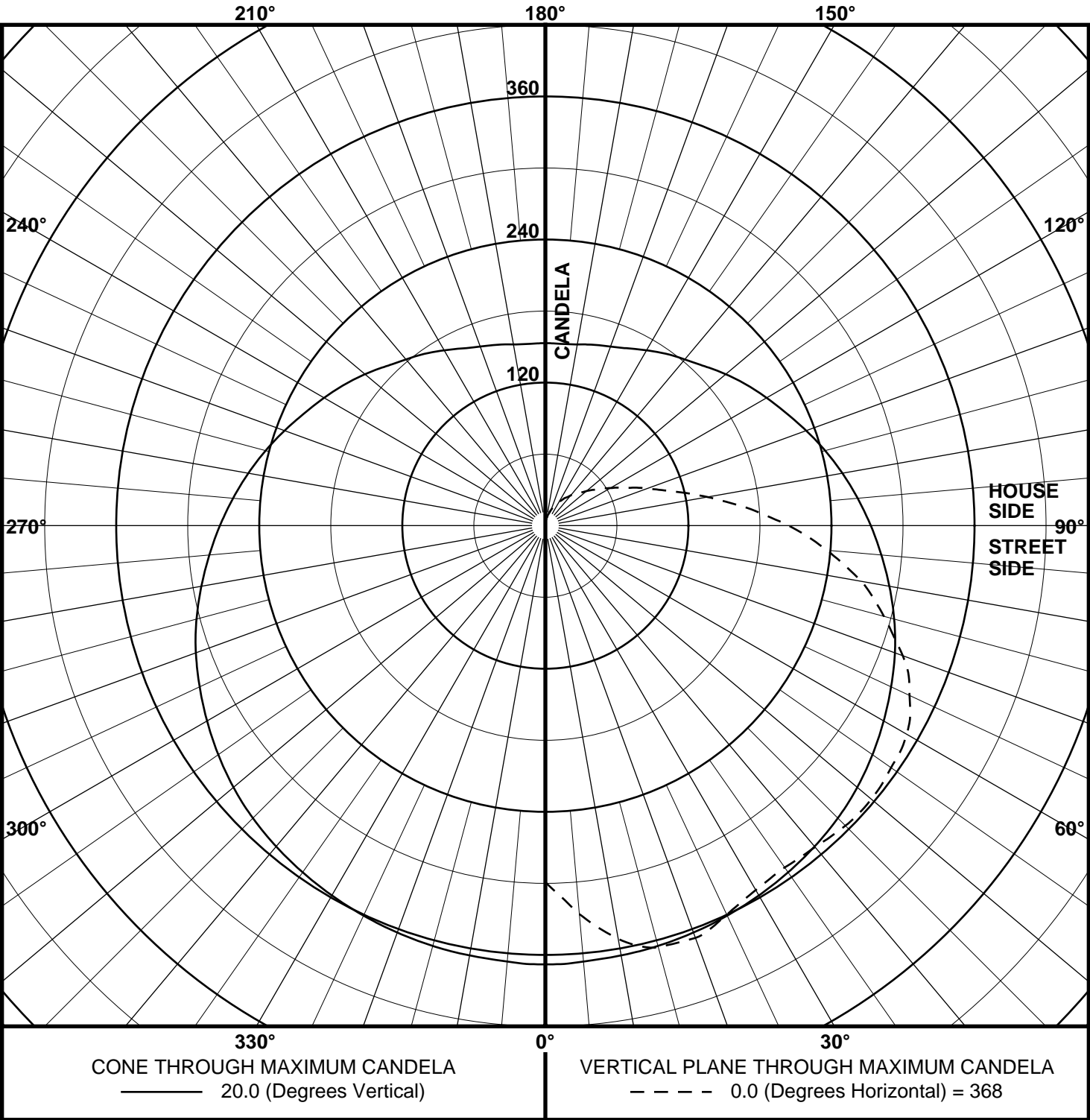
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MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA



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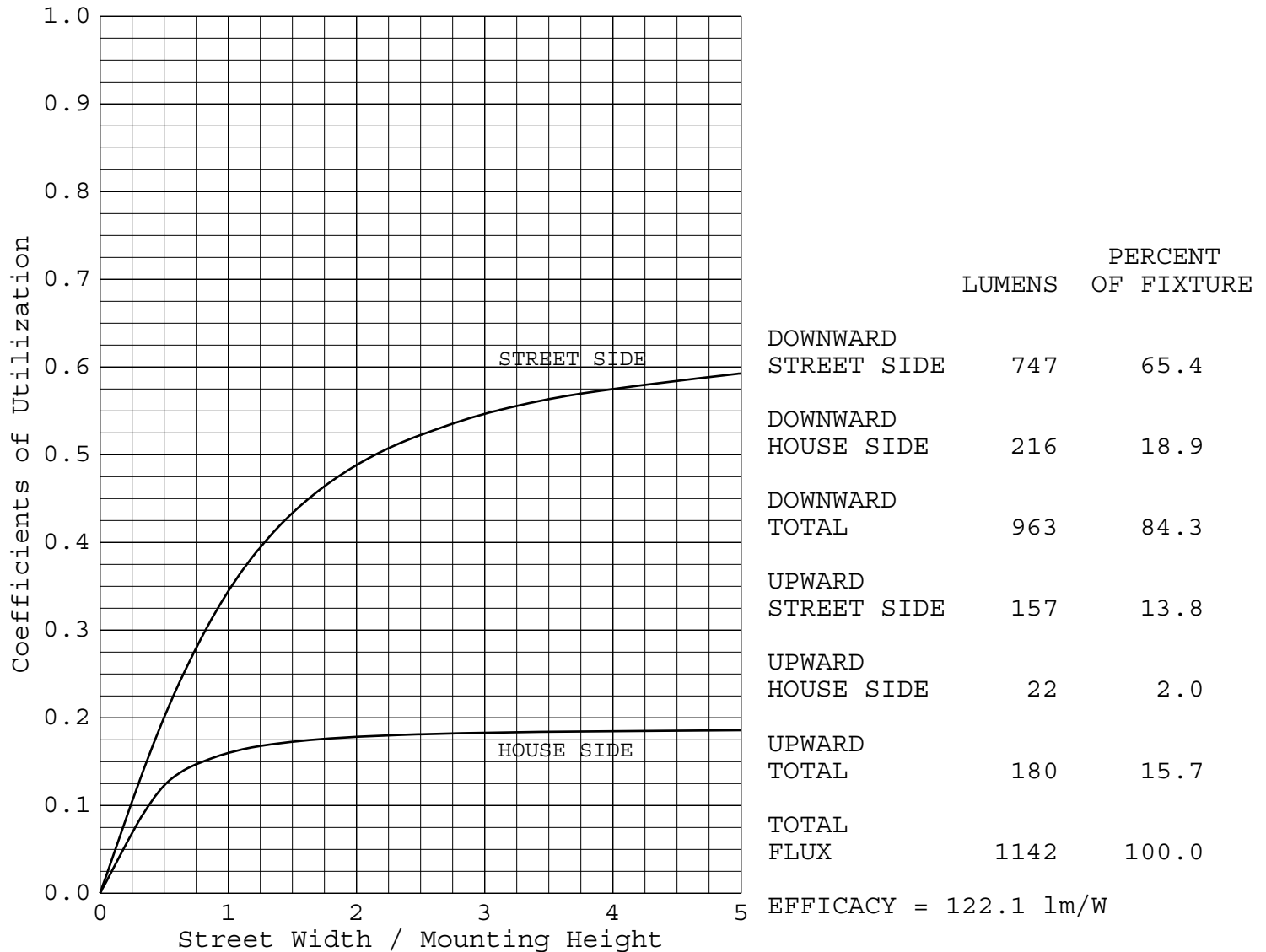
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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



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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BUG Rating			B0 U3 G1		
Zonal Summary			Zone Ratings		
			B	U	G
Forward					
FL	(0° – 30°)	747			
FM	(30° – 60°)	138.6			
FH	(60° – 80°)	309.5			
FVH	(80° – 90°)	217.9			G0
		80.7			G1
Backward					
BL	(0° – 30°)	216			
BM	(30° – 60°)	83.3	B0		
BH	(60° – 80°)	92.5	B0		
BVH	(80° – 90°)	32.5	B0		G0
		7.8			G0
Upward					
UL	(90° – 100°)	180			
UH	(100° – 180°)	60.8		U3	
		118.7		U3	
Trapped Light					
Total Flux					
		0			
		1142			
		100.0			

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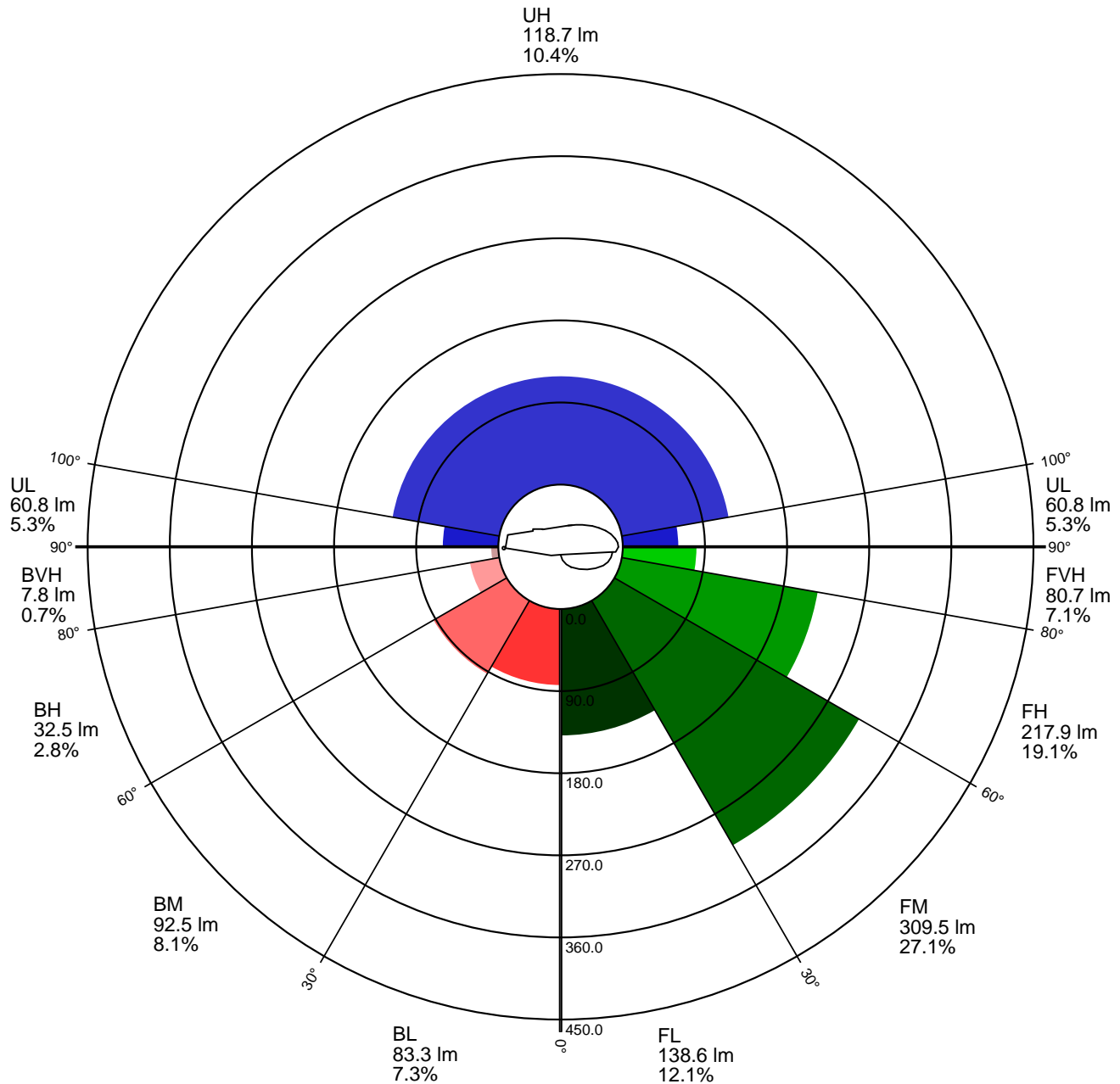
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Zonal Lumen Summary

(Linear scale)



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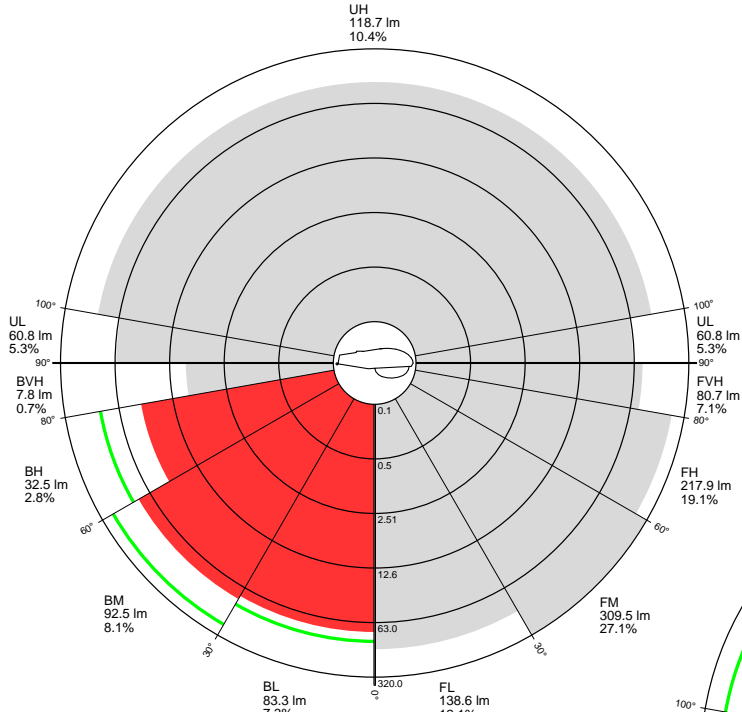
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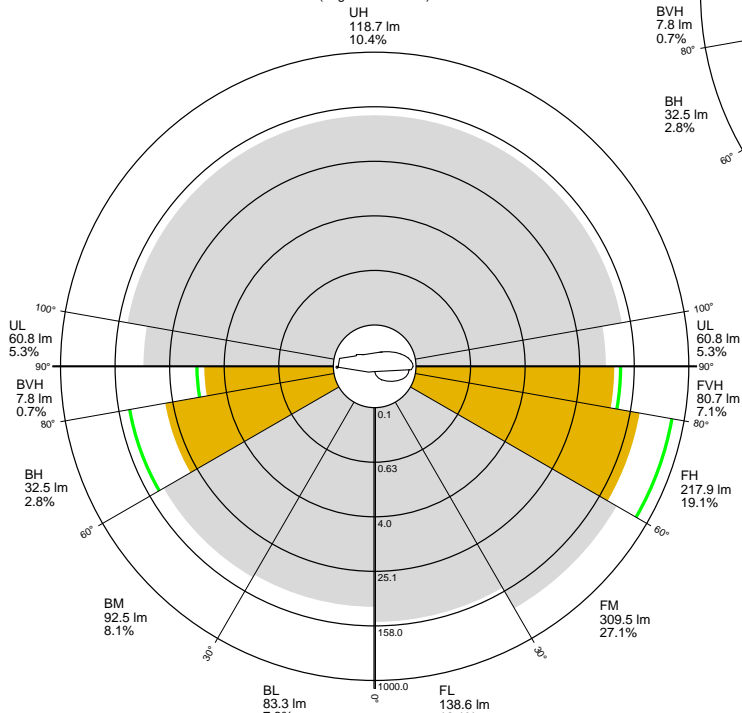
Backlight Rating Details

(Logarithmic scale)



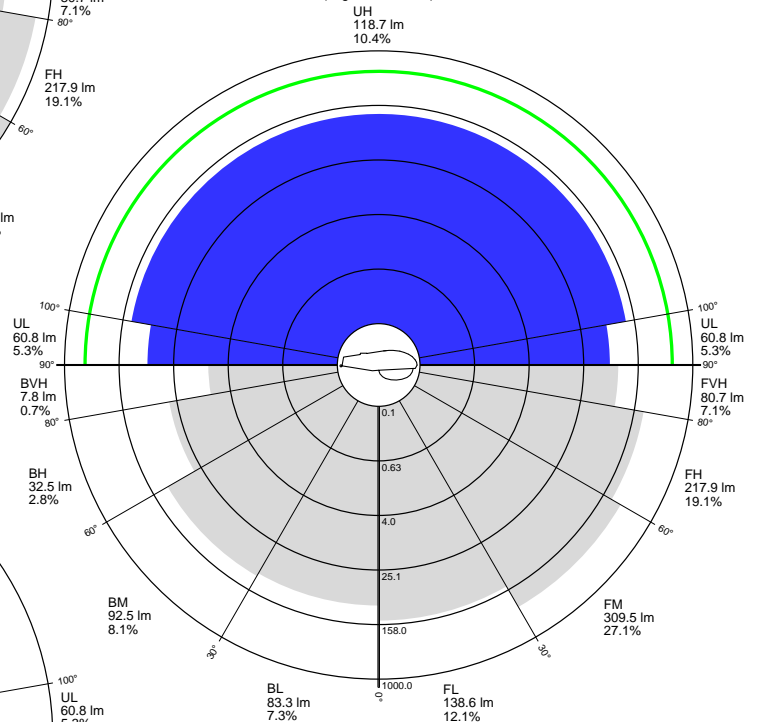
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



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CANDELA TABULATION

	STREET SIDE										
	0.0	2.5	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0
	180.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	175.0	0.	0.	0.	0.	1.	1.	2.	2.	2.	2.
	165.0	10.	10.	10.	10.	10.	9.	9.	8.	8.	7.
	155.0	18.	18.	18.	18.	17.	17.	16.	15.	13.	12.
	145.0	28.	28.	28.	27.	26.	25.	24.	22.	20.	17.
	135.0	38.	38.	38.	37.	35.	33.	31.	28.	25.	22.
	125.0	53.	53.	53.	51.	47.	43.	39.	34.	29.	24.
	115.0	75.	76.	75.	71.	65.	57.	49.	42.	34.	28.
	105.0	111.	111.	111.	105.	94.	80.	66.	54.	44.	34.
	95.0	170.	169.	169.	160.	144.	121.	97.	77.	62.	47.
	92.5	186.	186.	186.	176.	159.	133.	107.	85.	69.	52.
	90.0	204.	203.	203.	193.	175.	148.	119.	95.	77.	59.
	87.5	221.	220.	220.	209.	191.	162.	131.	106.	87.	68.
	85.0	237.	236.	236.	226.	206.	176.	143.	117.	98.	77.
V	82.5	253.	253.	252.	242.	221.	190.	156.	128.	109.	87.
E	80.0	269.	268.	268.	257.	235.	203.	168.	139.	120.	98.
R	77.5	282.	282.	281.	269.	248.	216.	179.	150.	131.	108.
T	75.0	294.	294.	293.	282.	260.	227.	189.	160.	141.	118.
I	72.5	306.	306.	305.	294.	271.	237.	199.	169.	151.	127.
C	70.0	319.	318.	318.	306.	283.	248.	209.	180.	161.	137.
A	67.5	330.	329.	328.	317.	294.	258.	218.	188.	169.	145.
L	65.0	337.	338.	337.	325.	302.	266.	226.	196.	176.	152.
	62.5	345.	344.	344.	332.	308.	272.	232.	202.	182.	157.
A	60.0	350.	350.	349.	337.	313.	277.	238.	208.	187.	162.
N	57.5	353.	353.	352.	340.	317.	281.	243.	213.	191.	166.
G	55.0	354.	355.	354.	342.	319.	284.	246.	217.	195.	170.
L	52.5	356.	356.	355.	344.	321.	287.	250.	222.	200.	175.
E	50.0	357.	357.	356.	345.	322.	290.	255.	228.	206.	181.
	47.5	357.	357.	356.	345.	323.	293.	260.	234.	213.	189.
	45.0	356.	355.	354.	344.	324.	295.	266.	242.	222.	198.
	42.5	354.	354.	352.	343.	324.	298.	273.	251.	232.	208.
	40.0	352.	352.	351.	342.	325.	303.	281.	262.	243.	220.
	37.5	351.	351.	350.	342.	328.	309.	292.	274.	256.	233.
	35.0	350.	350.	349.	343.	331.	317.	302.	286.	268.	246.
	32.5	351.	351.	350.	345.	337.	325.	313.	298.	281.	259.
	30.0	353.	353.	352.	349.	342.	333.	323.	309.	292.	270.
	25.0	360.	360.	360.	357.	353.	347.	338.	325.	309.	289.
	20.0<<	368.	368.	367.	365.	361.	355.	347.	335.	320.	303.
	15.0	366.	366.	366.	364.	360.	354.	346.	336.	324.	310.
	10.0	352.	352.	351.	351.	347.	343.	337.	330.	321.	311.
	5.0	327.	327.	326.	327.	325.	323.	319.	316.	311.	307.
	0.0	299.	299.	299.	299.	299.	299.	299.	299.	299.	299.

||
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
	180.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	175.0	2.	2.	2.	1.	1.	1.	1.	0.	0.	1.
	165.0	6.	5.	4.	4.	3.	2.	1.	1.	1.	0.
	155.0	9.	9.	7.	6.	5.	3.	2.	1.	1.	1.
	145.0	13.	12.	10.	9.	7.	5.	3.	1.	1.	1.
	135.0	16.	15.	13.	11.	8.	6.	3.	1.	1.	1.
	125.0	17.	16.	14.	12.	9.	6.	4.	2.	1.	1.
	115.0	18.	17.	15.	13.	10.	7.	4.	2.	1.	1.
	105.0	21.	19.	16.	14.	11.	8.	4.	2.	1.	1.
	95.0	28.	24.	19.	15.	12.	8.	5.	2.	2.	1.
	92.5	30.	26.	20.	16.	12.	8.	4.	2.	1.	1.
	90.0	34.	29.	22.	16.	12.	8.	4.	2.	1.	1.
	87.5	39.	33.	24.	18.	13.	8.	5.	2.	2.	1.
	85.0	45.	38.	27.	20.	15.	10.	6.	3.	2.	2.
V	82.5	52.	43.	31.	22.	17.	12.	8.	5.	4.	4.
E	80.0	59.	49.	35.	25.	19.	14.	10.	7.	6.	6.
R	77.5	67.	56.	39.	28.	21.	16.	11.	9.	8.	7.
T	75.0	74.	62.	43.	31.	24.	18.	13.	11.	10.	10.
I	72.5	81.	69.	48.	35.	26.	20.	16.	13.	12.	11.
C	70.0	89.	76.	53.	39.	29.	23.	18.	15.	14.	14.
A	67.5	97.	82.	58.	43.	33.	25.	21.	18.	17.	16.
L	65.0	103.	88.	64.	46.	36.	29.	24.	20.	19.	19.
	62.5	108.	94.	69.	52.	40.	32.	27.	23.	22.	22.
A	60.0	113.	99.	74.	56.	44.	36.	30.	26.	25.	24.
N	57.5	118.	105.	80.	61.	49.	40.	34.	30.	28.	28.
G	55.0	124.	110.	86.	67.	53.	44.	38.	33.	32.	31.
L	52.5	130.	117.	92.	73.	59.	49.	42.	37.	36.	35.
E	50.0	138.	125.	101.	81.	65.	54.	47.	42.	40.	39.
	47.5	147.	133.	109.	88.	72.	60.	52.	47.	45.	43.
	45.0	157.	144.	119.	97.	80.	67.	58.	52.	50.	48.
	42.5	168.	155.	130.	107.	88.	74.	65.	58.	55.	54.
	40.0	180.	167.	142.	118.	98.	82.	71.	64.	61.	59.
	37.5	193.	180.	155.	130.	109.	92.	80.	72.	68.	66.
	35.0	207.	193.	168.	143.	121.	103.	90.	80.	76.	74.
	32.5	220.	207.	182.	157.	134.	114.	101.	90.	85.	83.
	30.0	232.	220.	195.	171.	147.	128.	113.	102.	96.	93.
	25.0	254.	242.	219.	197.	176.	156.	142.	130.	123.	119.
	20.0<<	273.	263.	243.	223.	206.	189.	176.	164.	157.	153.
	15.0	286.	278.	263.	248.	234.	221.	211.	202.	196.	192.
	10.0	296.	290.	280.	270.	261.	252.	245.	239.	236.	234.
	5.0	299.	296.	291.	287.	282.	278.	275.	271.	270.	269.
	0.0	299.	299.	299.	299.	299.	299.	299.	299.	299.	299.

CONE OF MAXIMUM CANDELA

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	7
5- 10	21
10- 15	34
15- 20	45
20- 25	54
25- 30	60
30- 35	64
35- 40	66
40- 45	67
45- 50	68
50- 55	69
55- 60	69
60- 65	68
65- 70	66
70- 75	61
75- 80	55
80- 85	48
85- 90	40
90- 95	33
95-100	27
100-105	22
105-110	18
110-115	15
115-120	13
120-125	11
125-130	9
130-135	8
135-140	6
140-145	5
145-150	4
150-155	3
155-160	2
160-165	1
165-170	1
170-175	0
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	28
0- 20	108
0- 30	222
0- 40	351
0- 50	486
0- 60	624
0- 70	758
0- 80	874
0- 90	963
0-100	1024
0-110	1065
0-120	1093
0-130	1113
0-140	1127
0-150	1136
0-160	1141
0-170	1142
0-180	1142

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ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST BROWN PAINTED METAL HOUSING, FORMED SPECULAR PAINTED REFLECTOR, 1 WHITE CIRCUIT BOARD WITH 15 LEDS, MOLDED FROSTED PLASTIC LENS.

LAMP: FIFTEEN WHITE LIGHT EMITTING DIODES (LEDs), TILTED 30-DEGREE FROM VERTICAL BASE-UP POSITION.

DRIVER: RD-08-EGH-A0450

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	Calibration Due: N/A
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	3/08/19
	OCEAN OPTICS QE65PRO Spectroradiometer	05/24/19
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	05/24/19

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

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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	1142 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3412
Chromaticity Ordinate y	0.3471
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2105
Chromaticity Ordinate v'	0.4819
Correlated Color Temp CCT (K)	5140
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	3438 *
ELECTRICAL	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.037
Input Power (Watts)	9.35
Input Power Factor (%)	91.2
Input Current THD (%)	14.4
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	122.1
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.066
Input Power (Watts)	7.85
Input Power Factor (%)	99.5
Input Current THD (%)	8.3
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	75
R1 Light greyish red	72
R2 Dark greyish yellow	80
R3 Strong yellowish green	85
R4 Moderate yellowish green	76
R5 Light bluish green	74
R6 Light blue	73
R7 Light violet	81
R8 Light reddish purple	57
R9 Strong red	-27
R10 Strong yellow	52
R11 Strong green	74
R12 Strong blue	50
R13 Light yellowish pink (skin)	73
R14 Moderate olive green (leaf)	92

*NOTE:

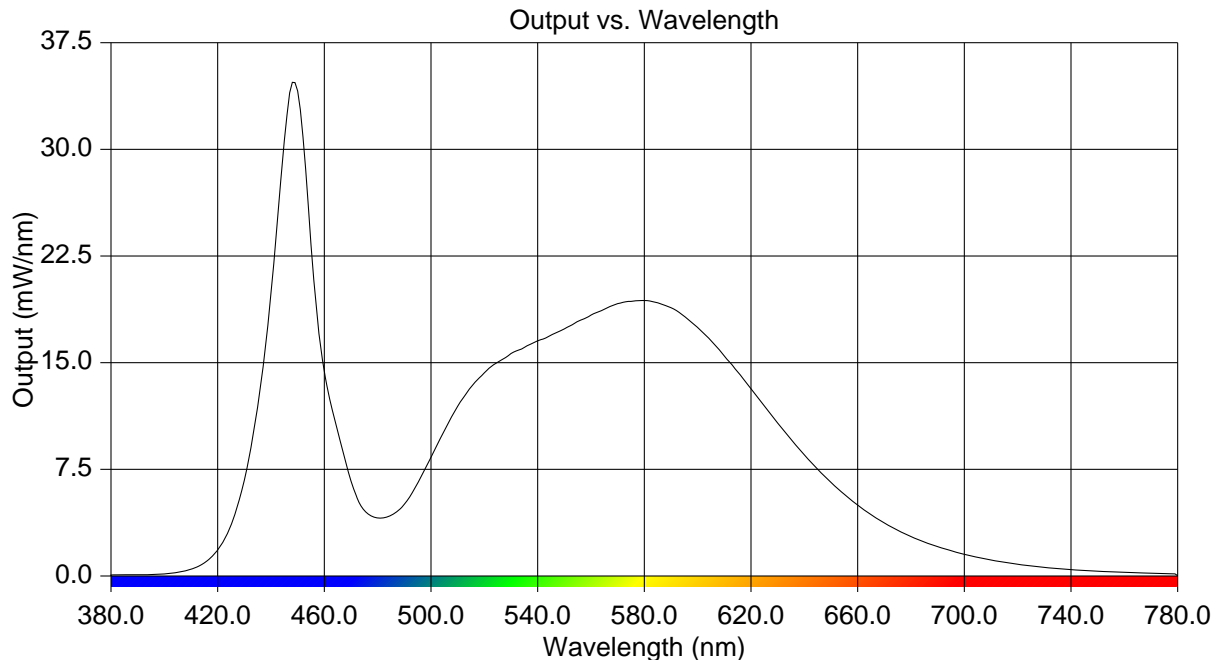
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	0.070	515	13.285	650	6.586
385	0.077	520	14.284	655	5.745
390	0.085	525	15.028	660	4.991
395	0.104	530	15.643	665	4.310
400	0.153	535	16.071	670	3.724
405	0.250	540	16.547	675	3.214
410	0.473	545	16.937	680	2.776
415	0.922	550	17.373	685	2.390
420	1.827	555	17.906	690	2.055
425	3.575	560	18.346	695	1.783
430	6.731	565	18.744	700	1.519
435	11.973	570	19.151	705	1.305
440	19.892	575	19.307	710	1.120
445	30.617	580	19.356	715	0.961
450	34.101	585	19.204	720	0.823
455	23.286	590	18.865	725	0.704
460	14.356	595	18.270	730	0.606
465	10.191	600	17.468	735	0.522
470	6.676	605	16.536	740	0.453
475	4.603	610	15.468	745	0.390
480	4.078	615	14.354	750	0.337
485	4.257	620	13.176	755	0.290
490	5.045	625	11.976	760	0.253
495	6.521	630	10.744	765	0.220
500	8.357	635	9.595	770	0.191
505	10.205	640	8.514	775	0.168
510	11.934	645	7.520	780	0.025



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CIE Chromaticity Diagram

