

REPORT NUMBER: RAB04717

PAGE: 1 OF 10

ISSUE DATE: 11/30/18

DATE SAMPLE TESTED: 11/30/18

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: W34-55L-830

LUMINAIRE: WALLPACK WITH ALUMINUM PRECISION DIE CAST CONSTRUCTION, CLEAR GLASS LENS AND SPECULAR ALUMINUM REFLECTOR.

LAMPS: ONE HUNDRED AND TEN WHITE LIGHT EMITTING DIODES (LEDs)

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

WATT: TOTAL INPUT WATTS = 51.1 W AT 120.0 VAC.

LED DRIVER: LED DRIVER: RDD-SLP-050-A1400-P (-40C)

PROCEDURE: TEST PROCEDURE: IESNA LM-79-08

NOTE: LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE
AMBIENT: 24.2

NVLAP LAB CODE: ACCREDITED LABORATORY CODE 201058-0



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.

Checked X.CAO

Approved D.WANG-MUNSON

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ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

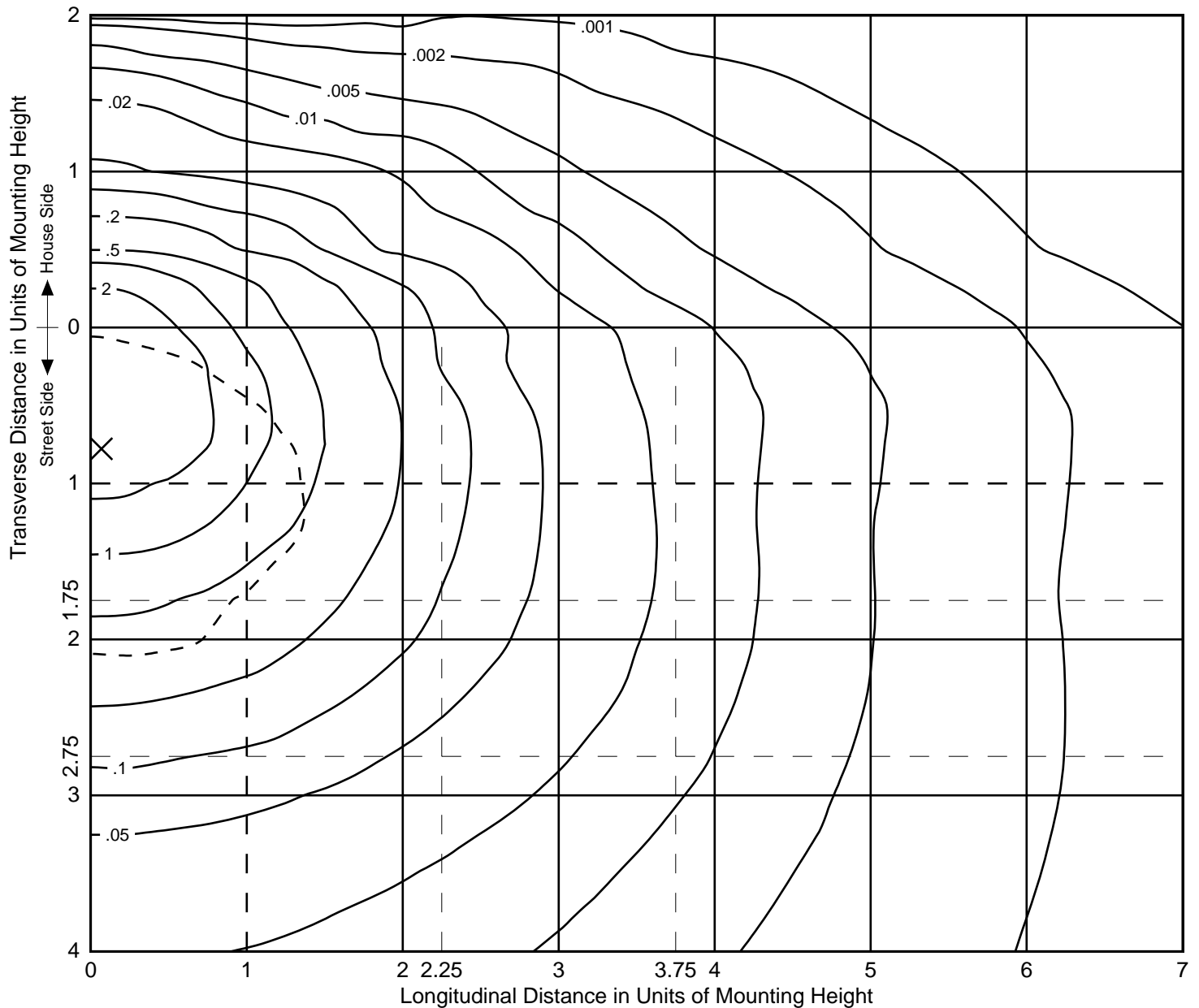
Values based on 20-foot mounting height

IES Classification: (does not classify)

Cutoff Classification (deprecated): Semicutoff

— — — — — 1/2 Maximum Candela trace

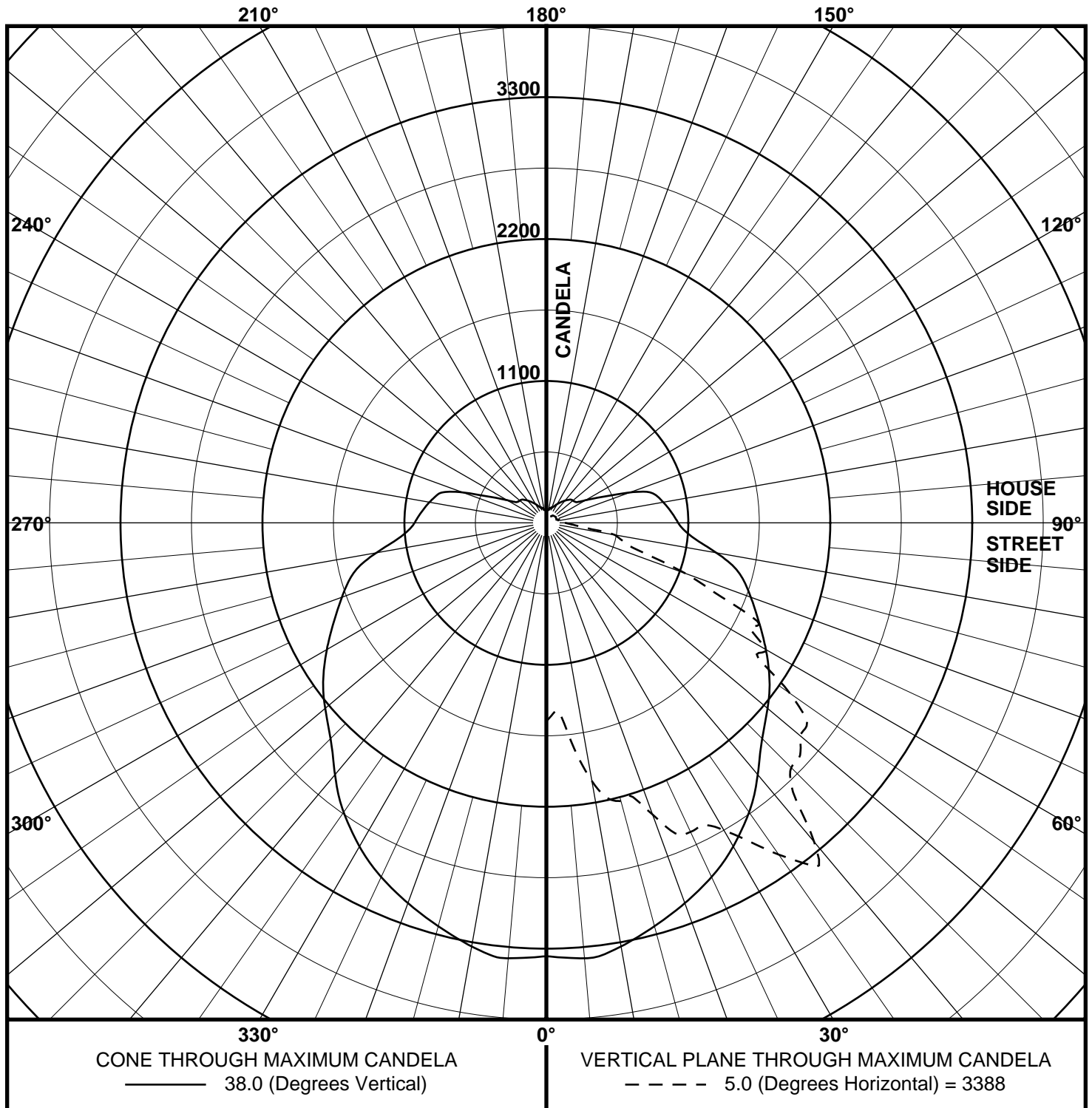
× Maximum Candela point



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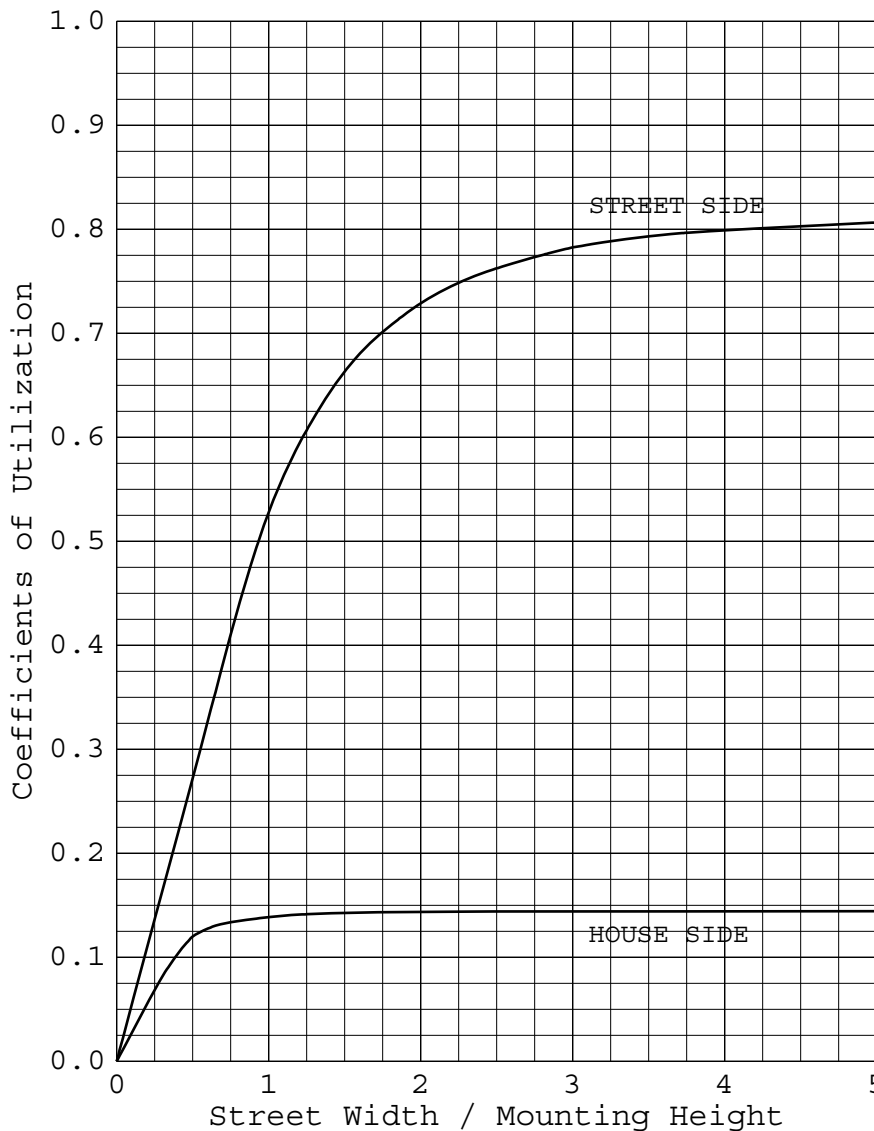
MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA



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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	4341	82.4
DOWNWARD HOUSE SIDE	766	14.5
DOWNWARD TOTAL	5107	96.9
UPWARD STREET SIDE	145	2.8
UPWARD HOUSE SIDE	17	0.3
UPWARD TOTAL	163	3.1
TOTAL FLUX	5270	100.0

EFFICACY = 103.1 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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BUG Rating			B1 U3 G2		
Zonal Summary			Zone Ratings		
			B	U	G
Forward					
FL	(0° – 30°)	4341			
FM	(30° – 60°)	840.7			
FH	(60° – 80°)	2387.9			
FVH	(80° – 90°)	993.1			G1
		119.1			G2
Backward					
BL	(0° – 30°)	766			
BM	(30° – 60°)	14.5			
BH	(60° – 80°)	352.6	B1		
BVH	(80° – 90°)	335.2	B1		
		71.3	B0		G0
		7.2			G0
Upward					
UL	(90° – 100°)	163			
UH	(100° – 180°)	41.9			
		120.6		U2	
				U3	
Trapped Light					
Total Flux					
		0			
		5270			
		100.0			

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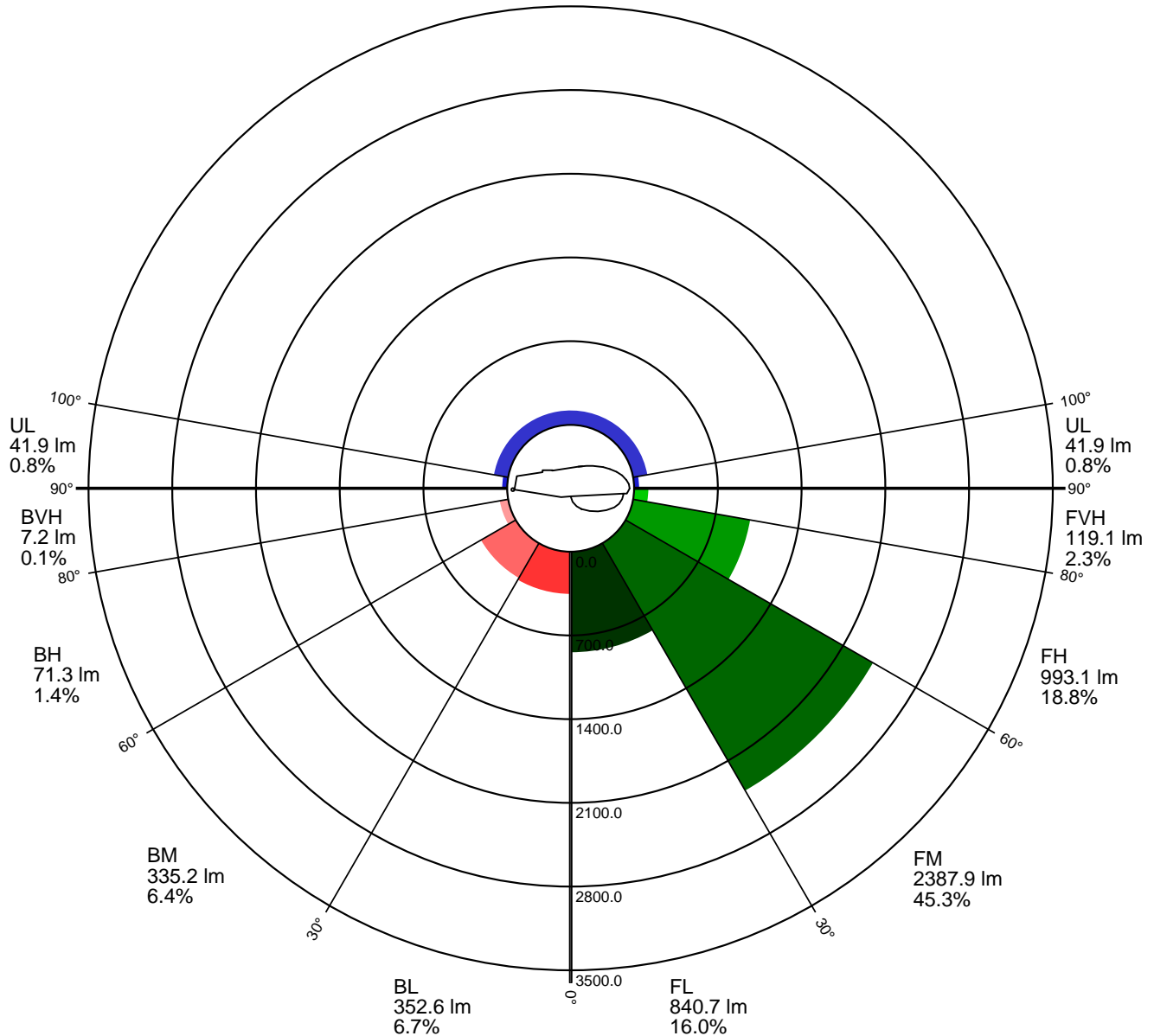
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Zonal Lumen Summary

(Linear scale)

UH
120.6 lm
2.3%

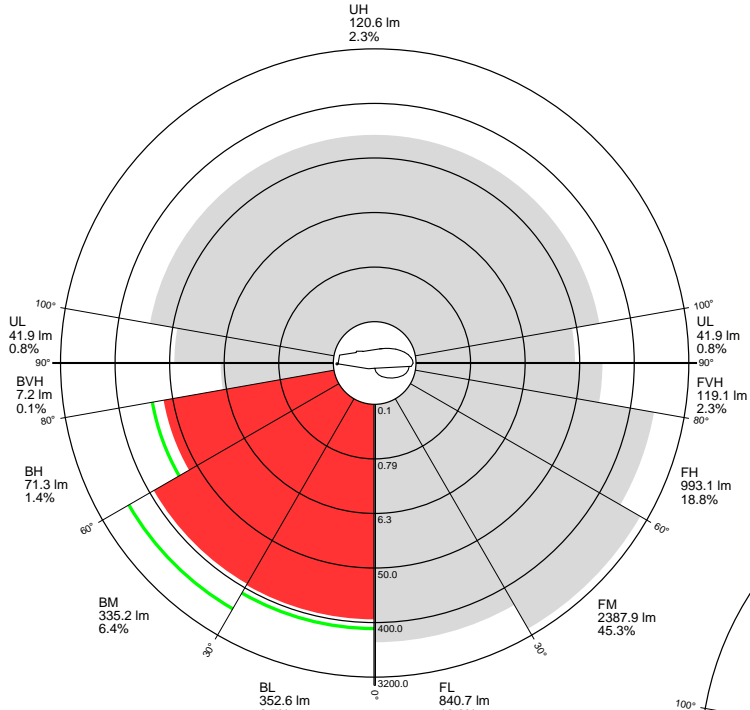


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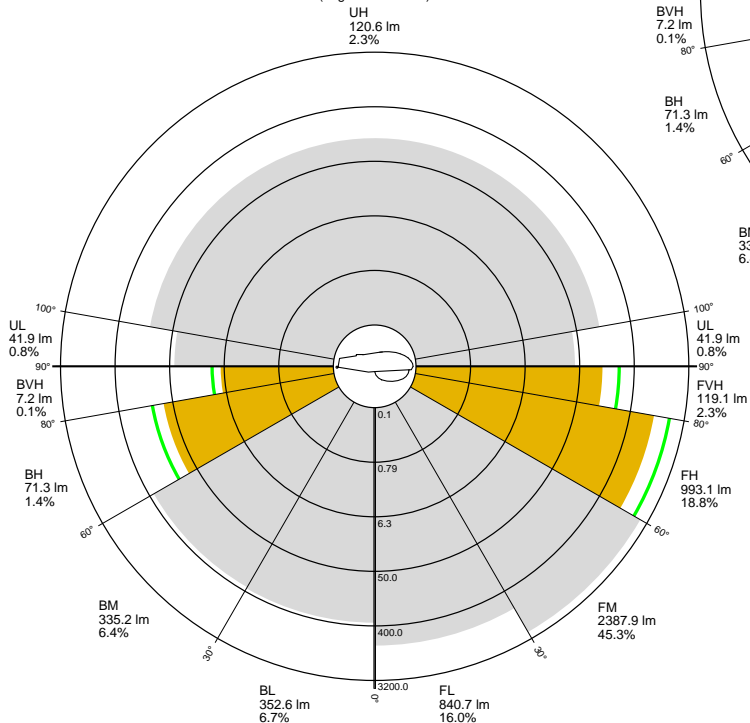
Backlight Rating Details

(Logarithmic scale)



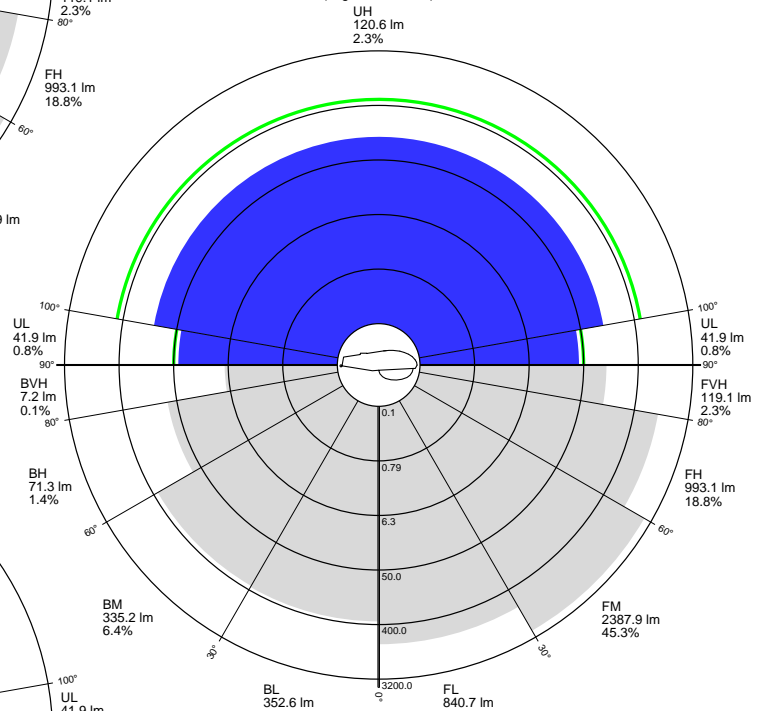
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



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CANDELA TABULATION

	LATERAL ANGLE										
	0.0	5.0	7.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0
	180.0	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
	175.0	1.	1.	1.	2.	2.	3.	3.	4.	4.	5.
	165.0	10.	10.	10.	9.	8.	7.	6.	5.	4.	5.
	155.0	26.	27.	27.	25.	23.	19.	15.	11.	7.	5.
	145.0	57.	58.	57.	54.	50.	40.	30.	21.	13.	9.
	135.0	80.	79.	79.	77.	73.	62.	48.	32.	20.	12.
	125.0	89.	89.	88.	86.	76.	63.	50.	38.	25.	14.
	115.0	79.	78.	78.	75.	68.	57.	45.	37.	29.	23.
	105.0	101.	101.	99.	91.	78.	62.	48.	40.	34.	26.
	95.0	91.	91.	91.	89.	85.	78.	67.	61.	57.	38.
	92.5	113.	114.	113.	112.	105.	92.	82.	79.	73.	45.
	90.0	145.	145.	145.	142.	132.	114.	112.	106.	91.	58.
	87.5	176.	177.	176.	170.	165.	158.	154.	145.	129.	83.
	85.0	229.	227.	226.	223.	222.	220.	241.	229.	175.	114.
V	82.5	317.	321.	322.	325.	360.	369.	358.	288.	238.	172.
E	80.0	536.	537.	535.	529.	518.	478.	409.	383.	333.	256.
R	77.5	590.	590.	583.	570.	533.	518.	530.	531.	466.	357.
T	75.0	653.	651.	639.	631.	635.	666.	721.	714.	595.	450.
I	72.5	814.	827.	810.	825.	882.	940.	972.	915.	727.	559.
C	70.0	1108.	1144.	1111.	1156.	1264.	1261.	1238.	1046.	872.	702.
A	67.5	1441.	1413.	1404.	1414.	1523.	1470.	1332.	1145.	1006.	826.
L	65.0	1720.	1803.	1767.	1757.	1623.	1541.	1480.	1353.	1122.	904.
	62.5	1763.	1783.	1748.	1737.	1720.	1742.	1616.	1503.	1288.	1002.
A	60.0	1901.	1961.	1928.	1941.	1935.	1826.	1878.	1602.	1432.	1047.
N	57.5	1927.	1945.	1920.	2081.	2067.	2148.	1990.	1717.	1535.	1116.
G	55.0	2253.	2304.	2298.	2325.	2370.	2252.	2052.	1853.	1603.	1149.
L	52.5	2443.	2545.	2547.	2572.	2405.	2302.	2195.	1973.	1683.	1235.
E	50.0	2514.	2572.	2535.	2521.	2469.	2413.	2390.	2022.	1705.	1311.
	47.5	2570.	2667.	2679.	2640.	2528.	2597.	2535.	2076.	1729.	1363.
	45.0	2621.	2683.	2691.	2591.	2703.	2817.	2527.	2112.	1732.	1420.
	42.5	2747.	2830.	2836.	2879.	3010.	2918.	2452.	2078.	1756.	1461.
	40.0	3158.	3227.	3240.	3133.	3163.	2808.	2417.	2110.	1798.	1499.
	38.0<<	3359.	3388.	3383.	3237.	3029.	2739.	2365.	2111.	1817.	1557.
	37.5	3352.	3340.	3344.	3228.	2972.	2709.	2362.	2128.	1824.	1556.
	35.0	3149.	3139.	3155.	2974.	2820.	2590.	2337.	2114.	1898.	1612.
	30.0	2749.	2752.	2762.	2720.	2580.	2455.	2276.	2088.	1910.	1660.
	25.0	2625.	2644.	2635.	2541.	2527.	2306.	2154.	1985.	1923.	1627.
	20.0	2392.	2406.	2399.	2391.	2225.	2225.	2030.	1938.	1875.	1575.
	15.0	2224.	2233.	2199.	2049.	2044.	2072.	2007.	1899.	1794.	1577.
	10.0	2028.	2032.	2084.	2082.	2078.	1801.	1922.	1636.	1631.	1557.
	5.0	1550.	1555.	1565.	1611.	1639.	1662.	1659.	1596.	1505.	1511.
	0.0	1538.	1538.	1538.	1538.	1538.	1538.	1538.	1538.	1538.	1538.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

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CANDELA TABULATION

	LATERAL ANGLE										
	HOUSE SIDE	90.0	95.0	105.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0 180.0
	180.0	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
	175.0	5.	5.	5.	4.	4.	4.	3.	3.	2.	2.
	165.0	5.	5.	5.	5.	5.	4.	4.	4.	4.	4.
	155.0	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.
	145.0	6.	6.	6.	6.	5.	5.	6.	6.	6.	6.
	135.0	7.	6.	6.	5.	5.	5.	5.	5.	5.	5.
	125.0	10.	8.	6.	5.	5.	5.	4.	4.	4.	4.
	115.0	17.	12.	7.	5.	5.	4.	4.	3.	3.	3.
	105.0	21.	16.	9.	6.	5.	4.	4.	4.	4.	3.
	95.0	17.	15.	11.	7.	5.	4.	3.	3.	3.	3.
	92.5	20.	15.	12.	8.	5.	4.	3.	3.	2.	2.
	90.0	28.	17.	15.	9.	5.	4.	3.	3.	2.	2.
	87.5	49.	25.	20.	11.	6.	4.	3.	2.	2.	2.
	85.0	81.	34.	27.	13.	7.	4.	3.	2.	2.	1.
V	82.5	129.	62.	37.	17.	8.	4.	3.	2.	1.	1.
E	80.0	184.	102.	51.	23.	9.	4.	2.	2.	1.	1.
R	77.5	245.	134.	66.	28.	11.	4.	2.	2.	1.	1.
T	75.0	294.	161.	79.	37.	14.	4.	2.	2.	1.	0.
I	72.5	355.	204.	101.	52.	21.	5.	2.	1.	1.	0.
C	70.0	435.	293.	123.	72.	30.	7.	2.	1.	1.	0.
A	67.5	502.	414.	142.	99.	41.	18.	2.	1.	1.	0.
L	65.0	553.	515.	154.	126.	54.	27.	13.	2.	1.	0.
	62.5	646.	603.	181.	152.	70.	35.	23.	16.	7.	4.
A	60.0	710.	657.	224.	175.	88.	44.	33.	27.	23.	23.
N	57.5	766.	728.	293.	192.	106.	55.	41.	37.	36.	34.
G	55.0	808.	786.	359.	205.	130.	66.	50.	46.	46.	46.
L	52.5	827.	853.	443.	223.	156.	78.	58.	54.	53.	55.
E	50.0	872.	896.	539.	246.	181.	95.	66.	59.	62.	63.
	47.5	904.	909.	629.	266.	203.	122.	74.	63.	62.	66.
	45.0	911.	928.	710.	297.	224.	157.	94.	68.	65.	64.
	42.5	935.	950.	775.	336.	247.	192.	128.	81.	67.	66.
	40.0	969.	954.	817.	402.	263.	229.	163.	112.	85.	73.
	38.0<<	1021.	971.	865.	473.	281.	254.	196.	142.	116.	98.
	37.5	1025.	981.	897.	490.	285.	259.	205.	151.	123.	107.
	35.0	1060.	966.	974.	624.	310.	274.	249.	198.	165.	145.
	30.0	1145.	999.	1093.	840.	487.	319.	286.	267.	257.	243.
	25.0	1246.	1125.	1178.	964.	778.	503.	340.	313.	305.	284.
	20.0	1346.	1245.	1104.	1136.	973.	864.	691.	540.	387.	366.
	15.0	1441.	1270.	1064.	1171.	1185.	1068.	942.	950.	871.	846.
	10.0	1522.	1378.	1360.	1061.	1286.	1131.	1308.	1161.	1055.	1053.
	5.0	1576.	1495.	1325.	1325.	1430.	1242.	1070.	1030.	1022.	1066.
	0.0	1538.	1538.	1538.	1538.	1538.	1538.	1538.	1538.	1538.	1538.

CONE OF MAXIMUM CANDELA

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	34
5- 10	105
10- 15	177
15- 20	238
20- 25	293
25- 30	346
30- 35	401
35- 40	456
40- 45	477
45- 50	480
50- 55	473
55- 60	435
60- 65	384
65- 70	319
70- 75	220
75- 80	141
80- 85	85
85- 90	42
90- 95	24
95-100	18
100-105	17
105-110	15
110-115	14
115-120	13
120-125	13
125-130	12
130-135	11
135-140	9
140-145	7
145-150	5
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	139
0- 20	555
0- 30	1193
0- 40	2051
0- 50	3008
0- 60	3916
0- 70	4620
0- 80	4981
0- 90	5107
0-100	5149
0-110	5181
0-120	5207
0-130	5232
0-140	5251
0-150	5263
0-160	5268
0-170	5269
0-180	5270

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ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647
LUMINAIRE: WALLPACK WITH ALUMINUM PRECISION DIE CAST CONSTRUCTION, CLEAR GLASS LENS AND SPECULAR ALUMINUM REFLECTOR.

LAMP: ONE HUNDRED AND TEN WHITE LIGHT EMITTING DIODES (LEDs)

DRIVER: RDD-SLP-050-A1400-P (-40C)

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 PROGRAMMABLE AC POWER SOURCE APS-7100	Calibration Due:
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	N/A
	OCEAN OPTICS QE65PRO Spectroradiometer	3/08/19
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	12/11/19

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRI_a,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)	5270 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4275
Chromaticity Ordinate y	0.4013
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2456
Chromaticity Ordinate v'	0.5189
Correlated Color Temp CCT (K)	3143
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	16036 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.428
Input Power (Watts)	51.1
Input Power Factor (%)	99.7
Input Current THD (%)	6.1
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	103.1
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.187
Input Power (Watts)	50.2
Input Power Factor (%)	96.7
Input Current THD (%)	7.0
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	82
R1 Light greyish red	80
R2 Dark greyish yellow	90
R3 Strong yellowish green	97
R4 Moderate yellowish green	81
R5 Light bluish green	81
R6 Light blue	88
R7 Light violet	84
R8 Light reddish purple	60
R9 Strong red	8
R10 Strong yellow	77
R11 Strong green	79
R12 Strong blue	69
R13 Light yellowish pink (skin)	82
R14 Moderate olive green (leaf)	99

*NOTE:

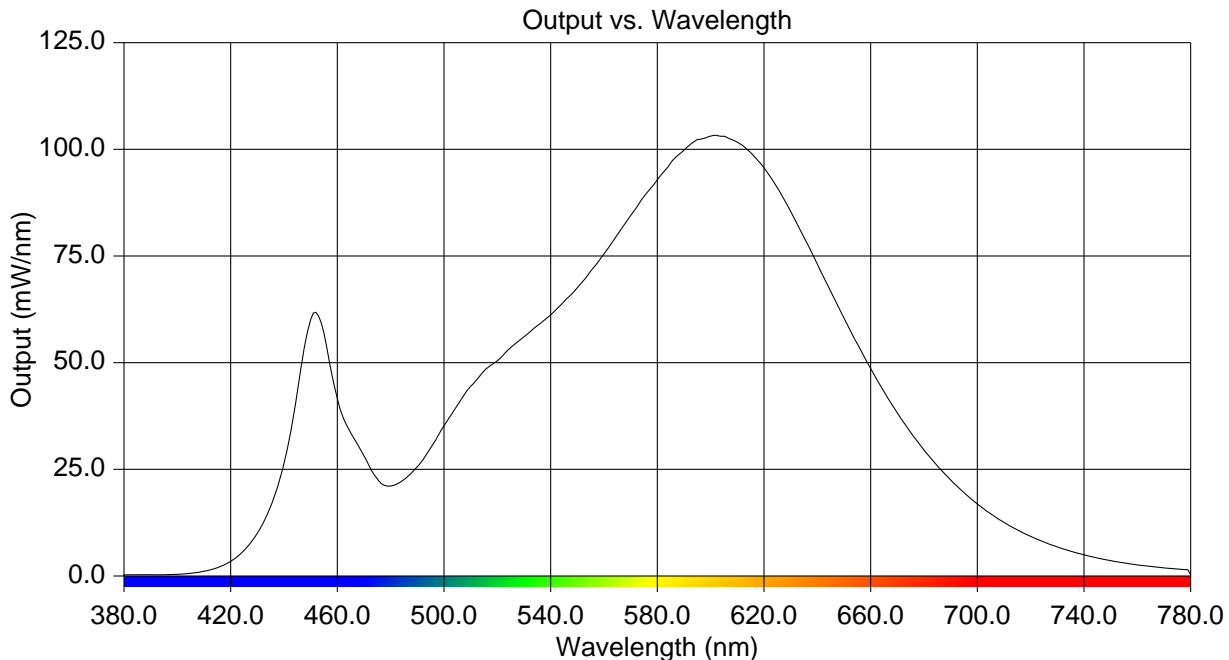
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	0.250	515	48.064	650	60.420
385	0.267	520	50.412	655	54.439
390	0.268	525	53.533	660	48.570
395	0.289	530	56.086	665	43.179
400	0.396	535	58.679	670	38.232
405	0.609	540	61.144	675	33.725
410	1.074	545	64.318	680	29.484
415	1.944	550	67.586	685	25.825
420	3.476	555	71.456	690	22.475
425	5.932	560	75.426	695	19.542
430	10.008	565	79.909	700	16.915
435	16.439	570	84.376	705	14.615
440	26.430	575	88.952	710	12.625
445	43.026	580	92.911	715	10.797
450	60.082	585	96.770	720	9.273
455	56.876	590	99.801	725	7.921
460	41.566	595	102.306	730	6.777
465	33.574	600	103.098	735	5.793
470	28.192	605	103.079	740	4.938
475	22.764	610	101.684	745	4.214
480	21.064	615	99.245	750	3.612
485	22.612	620	95.637	755	3.073
490	25.564	625	91.060	760	2.620
495	30.037	630	85.405	765	2.230
500	35.258	635	79.357	770	1.922
505	39.994	640	72.953	775	1.649
510	44.439	645	66.792	780	0.246



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CIE Chromaticity Diagram

