

REPORT NUMBER: RAB04694

PAGE: 1 OF 10

ISSUE DATE: 11/14/18

DATE SAMPLE TESTED: 11/14/18

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: W34-30L-830

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

LAMPS: SIXTY WHITE LIGHT EMITTING DIODES (LEDs)

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

WATT: TOTAL INPUT WATTS = 29 W AT 120.0 VAC.

LED DRIVER: LED DRIVER: RDD-SLE-035-A0700-R (-40C)

PROCEDURE: TEST PROCEDURE: IESNA LM-79-08

NOTE: LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE
AMBIENT: 25.0

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

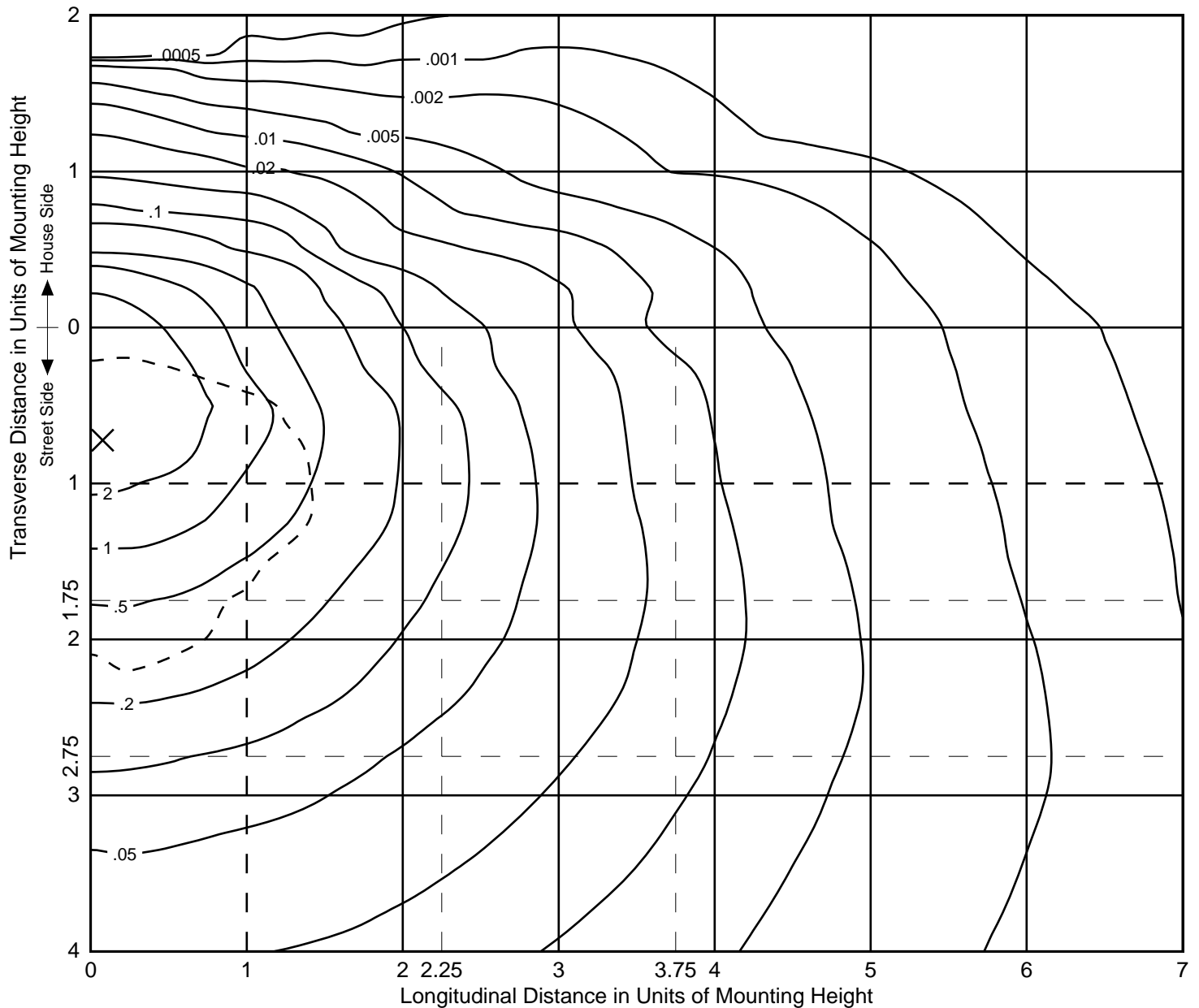
Values based on 16-foot mounting height

IES Classification: (does not classify)

Cutoff Classification (deprecated): Semicutoff

— — — — — 1/2 Maximum Candela trace

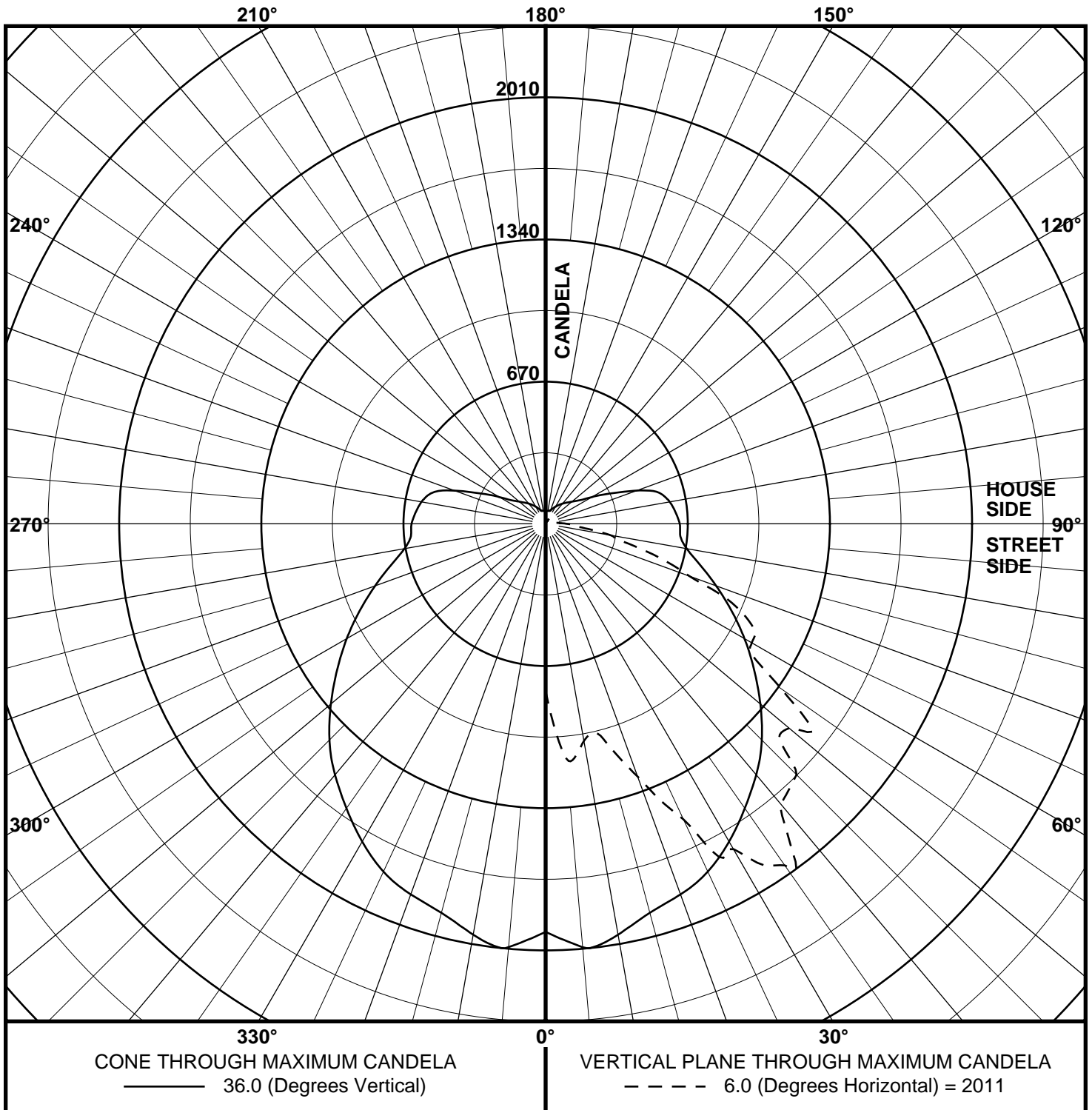
× Maximum Candela point



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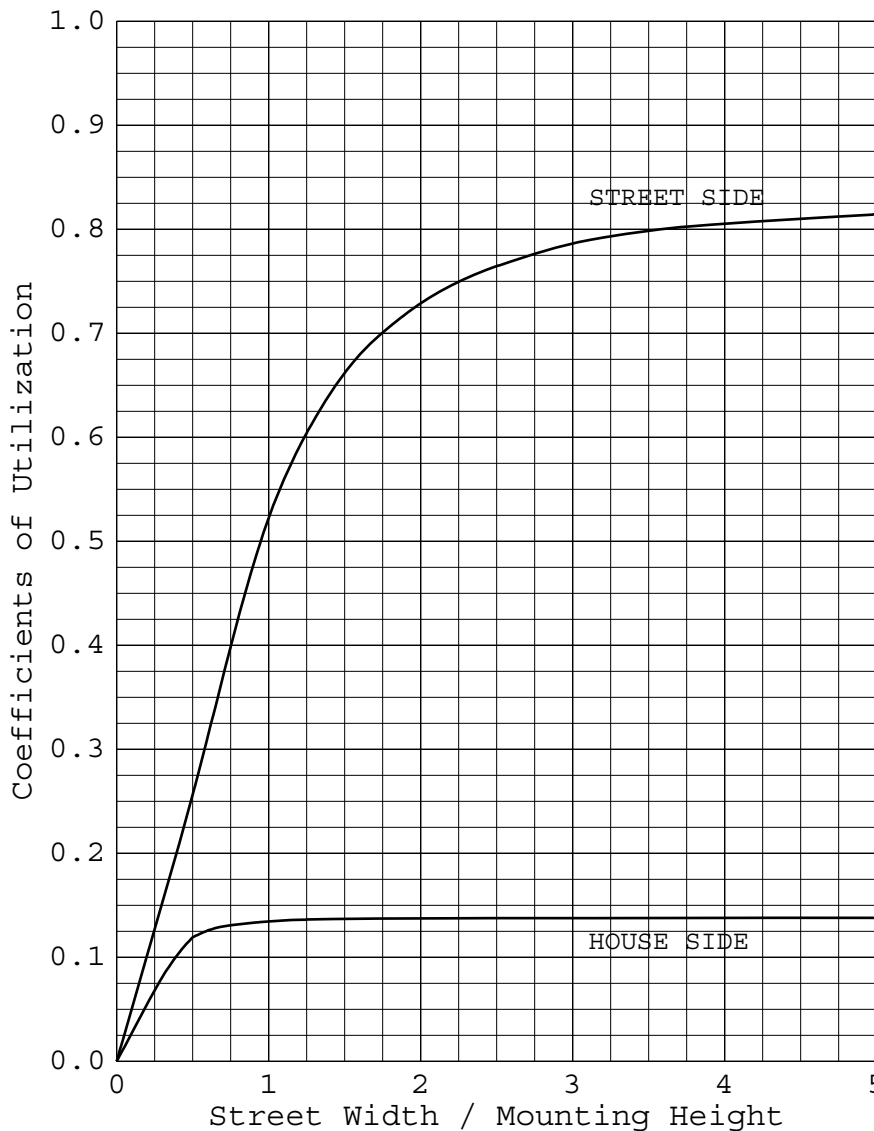
MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA



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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	2541	83.5
DOWNWARD HOUSE SIDE	424	13.9
DOWNWARD TOTAL	2965	97.4
UPWARD STREET SIDE	70	2.3
UPWARD HOUSE SIDE	10	0.3
UPWARD TOTAL	79	2.6
TOTAL FLUX	3044	100.0

EFFICACY = 105.0 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.

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BUG Rating						B1	U3	G1
Zonal Summary			Lumens	% of Fixture		Zone Ratings		
						B	U	G
Forward			2541	83.5				
FL	(0° – 30°)		457.8	15.0				
FM	(30° – 60°)		1404.4	46.1				
FH	(60° – 80°)		606.1	19.9				G0
FVH	(80° – 90°)		72.6	2.4				G1
Backward			424	13.9				
BL	(0° – 30°)		202.2	6.6		B1		
BM	(30° – 60°)		185.8	6.1		B0		
BH	(60° – 80°)		32.2	1.1		B0		G0
BVH	(80° – 90°)		3.5	0.1				G0
Upward			79	2.6				
UL	(90° – 100°)		25.4	0.8			U2	
UH	(100° – 180°)		54.0	1.8			U3	
Trapped Light			0	0.0				
Total Flux			3044	100.0				

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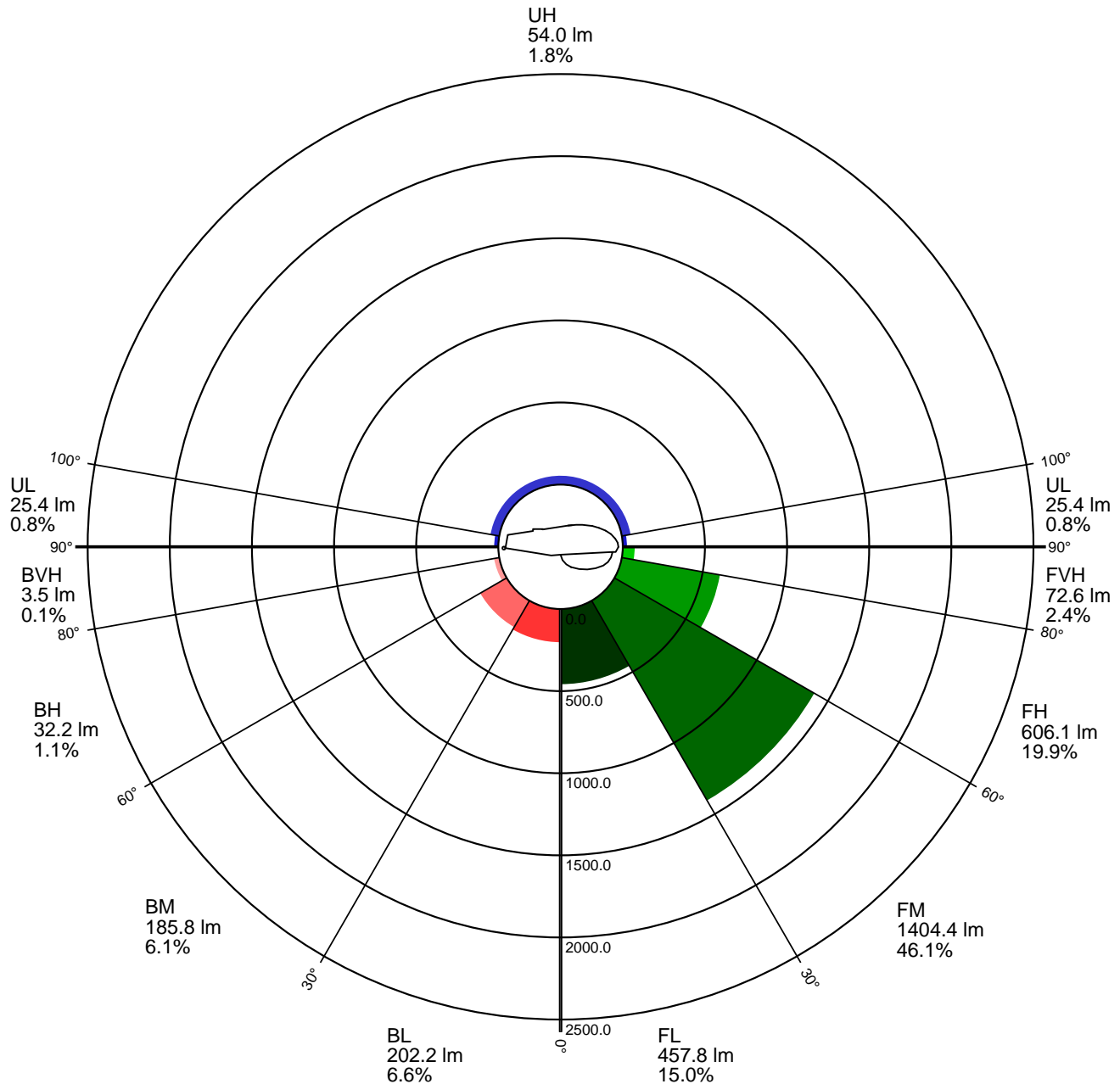
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Zonal Lumen Summary

(Linear scale)

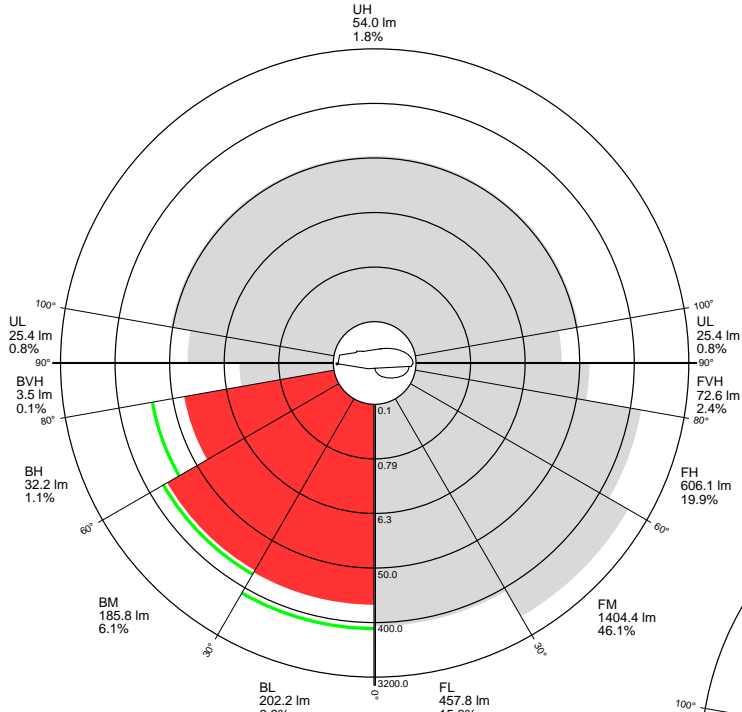


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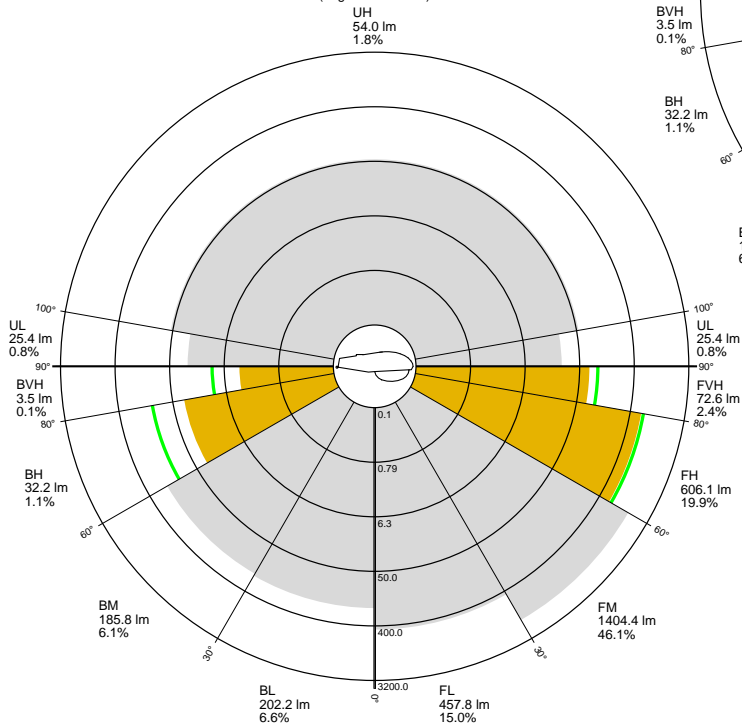
Backlight Rating Details

(Logarithmic scale)



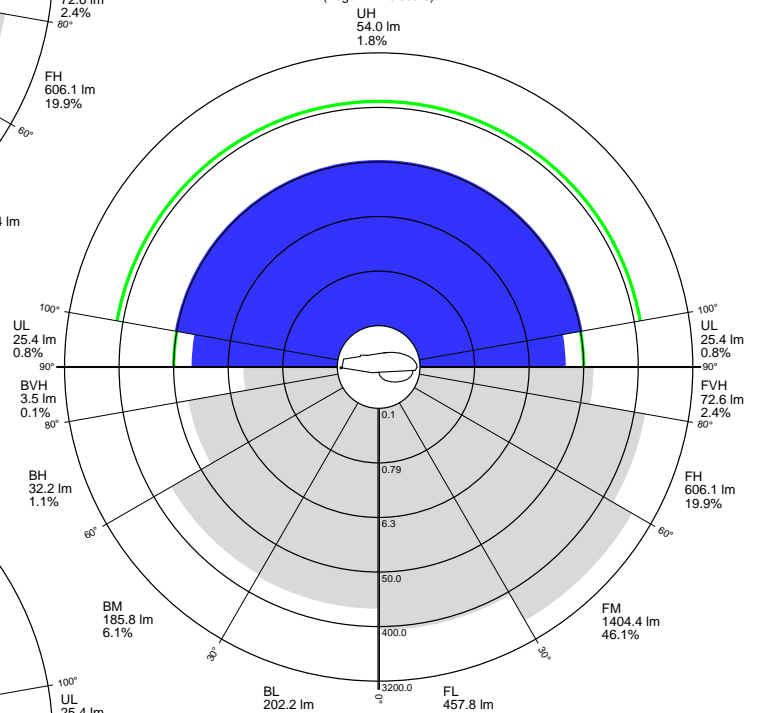
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



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CANDELA TABULATION

	STREET SIDE			LATERAL ANGLE							
	0.0	5.0	6.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0
	180.0	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
	175.0	1.	0.	1.	1.	1.	2.	2.	2.	3.	3.
	165.0	3.	3.	3.	3.	3.	2.	2.	2.	3.	3.
	155.0	11.	11.	10.	10.	9.	7.	6.	4.	3.	3.
	145.0	26.	26.	26.	24.	21.	16.	12.	8.	6.	4.
	135.0	38.	38.	38.	36.	31.	24.	15.	11.	7.	5.
	125.0	38.	38.	38.	35.	29.	23.	18.	13.	9.	7.
	115.0	38.	38.	38.	34.	28.	23.	19.	17.	14.	9.
	105.0	40.	41.	41.	37.	31.	24.	20.	19.	16.	12.
	95.0	55.	56.	55.	54.	48.	41.	37.	37.	31.	19.
	90.0	98.	100.	98.	97.	95.	79.	79.	67.	48.	29.
	87.5	140.	140.	138.	134.	121.	114.	93.	84.	69.	44.
	85.0	154.	154.	153.	155.	157.	132.	133.	113.	98.	70.
	82.5	222.	231.	217.	226.	239.	203.	199.	160.	143.	94.
V	80.0	312.	314.	311.	303.	287.	263.	264.	237.	208.	131.
E	77.5	364.	359.	356.	355.	358.	371.	365.	339.	282.	184.
R	75.0	480.	490.	477.	473.	507.	471.	449.	462.	367.	239.
T	72.5	573.	611.	605.	586.	589.	573.	610.	536.	443.	313.
I	70.0	735.	720.	721.	713.	745.	776.	674.	626.	577.	410.
C	67.5	892.	934.	925.	945.	919.	848.	770.	746.	639.	506.
A	65.0	1004.	1048.	1043.	1019.	987.	927.	848.	857.	697.	569.
L	62.5	1054.	1106.	1114.	1053.	1028.	947.	969.	939.	795.	605.
	60.0	1088.	1119.	1122.	1161.	1064.	1151.	1129.	1007.	877.	627.
A	57.5	1117.	1158.	1156.	1175.	1271.	1300.	1142.	1060.	965.	656.
N	55.0	1289.	1348.	1355.	1434.	1440.	1342.	1184.	1109.	1030.	706.
G	52.5	1508.	1573.	1581.	1482.	1451.	1317.	1290.	1184.	1080.	738.
L	50.0	1443.	1501.	1499.	1461.	1434.	1419.	1314.	1270.	1108.	726.
E	47.5	1431.	1491.	1493.	1433.	1558.	1478.	1394.	1315.	1139.	717.
	45.0	1625.	1670.	1672.	1640.	1615.	1542.	1484.	1310.	1113.	735.
	42.5	1634.	1703.	1698.	1588.	1656.	1684.	1508.	1348.	1096.	750.
	40.0	1653.	1737.	1726.	1703.	1791.	1757.	1463.	1320.	1050.	745.
	37.5	1852.	1891.	1889.	1823.	1863.	1680.	1461.	1255.	1001.	761.
	36.0<<	1923.	2003.	2011.	1898.	1809.	1637.	1441.	1200.	966.	755.
	35.0	1919.	1968.	1965.	1893.	1780.	1622.	1454.	1216.	993.	781.
	32.5	1861.	1905.	1905.	1786.	1661.	1598.	1393.	1192.	972.	751.
	30.0	1753.	1769.	1771.	1686.	1651.	1480.	1359.	1161.	990.	773.
	25.0	1609.	1520.	1537.	1432.	1463.	1373.	1280.	1087.	855.	850.
	20.0	1267.	1253.	1268.	1248.	1317.	1087.	1093.	1046.	974.	929.
	15.0	1053.	1047.	1049.	1085.	1137.	1001.	1025.	963.	873.	807.
	10.0	1046.	1003.	1039.	965.	892.	1051.	958.	945.	934.	876.
	5.0	1124.	1112.	1110.	1092.	932.	846.	771.	840.	938.	851.
	0.0	788.	788.	788.	788.	788.	788.	788.	788.	788.	788.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

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CANDELA TABULATION

	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	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
175.0	3.	3.	3.	3.	2.	2.	2.	2.	1.	1.	1.
165.0	3.	3.	3.	3.	3.	3.	2.	2.	2.	2.	3.
155.0	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
145.0	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
135.0	4.	3.	3.	3.	3.	3.	3.	3.	4.	4.	4.
125.0	6.	4.	3.	3.	3.	3.	3.	3.	3.	3.	3.
115.0	7.	6.	4.	3.	3.	3.	2.	2.	2.	3.	3.
105.0	8.	7.	4.	4.	3.	2.	2.	2.	2.	2.	3.
95.0	9.	8.	5.	4.	3.	2.	2.	2.	2.	2.	2.
90.0	13.	9.	6.	5.	3.	2.	2.	2.	1.	2.	2.
87.5	26.	12.	8.	5.	3.	2.	2.	2.	1.	1.	2.
85.0	42.	19.	11.	6.	3.	2.	2.	1.	1.	1.	1.
82.5	60.	33.	15.	8.	3.	2.	2.	1.	1.	1.	1.
V 80.0	83.	60.	20.	11.	4.	2.	1.	1.	1.	1.	1.
E 77.5	111.	93.	25.	15.	4.	2.	2.	1.	1.	1.	1.
R 75.0	114.	123.	33.	19.	6.	2.	1.	1.	1.	1.	1.
T 72.5	170.	168.	40.	23.	7.	2.	1.	1.	1.	0.	1.
I 70.0	220.	184.	48.	27.	8.	3.	1.	1.	1.	0.	0.
C 67.5	277.	186.	54.	33.	11.	3.	1.	1.	1.	0.	0.
A 65.0	282.	220.	57.	43.	16.	7.	2.	1.	1.	0.	0.
L 62.5	290.	282.	62.	55.	23.	11.	4.	1.	1.	0.	0.
60.0	325.	323.	78.	72.	33.	16.	8.	3.	1.	0.	0.
A 57.5	354.	356.	125.	93.	47.	21.	13.	9.	8.	6.	7.
N 55.0	395.	410.	204.	111.	62.	28.	17.	13.	12.	14.	14.
G 52.5	445.	469.	285.	121.	77.	34.	22.	17.	16.	18.	18.
L 50.0	499.	526.	345.	141.	95.	44.	28.	20.	20.	21.	22.
E 47.5	498.	546.	376.	173.	114.	56.	35.	26.	23.	24.	24.
45.0	499.	560.	417.	212.	125.	73.	42.	34.	30.	29.	29.
42.5	528.	593.	457.	246.	137.	95.	55.	40.	38.	38.	39.
40.0	563.	586.	486.	278.	158.	115.	71.	51.	43.	42.	43.
37.5	619.	618.	525.	314.	179.	133.	93.	65.	55.	51.	52.
36.0<<	632.	615.	558.	338.	192.	141.	108.	79.	62.	60.	61.
35.0	640.	624.	571.	342.	200.	151.	121.	88.	70.	63.	64.
32.5	662.	634.	577.	400.	218.	166.	141.	116.	99.	88.	89.
30.0	670.	651.	576.	448.	288.	180.	159.	135.	131.	115.	115.
25.0	669.	701.	626.	523.	419.	293.	201.	165.	170.	143.	144.
20.0	698.	729.	646.	522.	531.	428.	327.	312.	258.	206.	207.
15.0	763.	782.	739.	621.	522.	604.	597.	476.	441.	468.	463.
10.0	765.	830.	730.	797.	591.	758.	594.	549.	595.	787.	750.
5.0	760.	817.	872.	824.	726.	743.	777.	847.	856.	803.	794.
0.0	788.	788.	788.	788.	788.	788.	788.	788.	788.	788.	788.

CONE OF MAXIMUM CANDELA

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	20
5- 10	60
10- 15	95
15- 20	128
20- 25	159
25- 30	198
30- 35	235
35- 40	265
40- 45	278
45- 50	280
50- 55	278
55- 60	253
60- 65	222
65- 70	191
70- 75	138
75- 80	88
80- 85	50
85- 90	27
90- 95	15
95-100	10
100-105	8
105-110	7
110-115	6
115-120	6
120-125	5
125-130	5
130-135	5
135-140	4
140-145	3
145-150	2
150-155	1
155-160	1
160-165	1
165-170	0
170-175	0
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	80
0- 20	303
0- 30	660
0- 40	1161
0- 50	1719
0- 60	2250
0- 70	2663
0- 80	2888
0- 90	2965
0-100	2990
0-110	3005
0-120	3017
0-130	3027
0-140	3036
0-150	3041
0-160	3043
0-170	3044
0-180	3044

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DATE: 11/13/2018
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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: SIXTY WHITE LIGHT EMITTING DIODES (LEDs)

DRIVER: RDD-SLE-035-A0700-R (-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: N/A
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	3/08/19
	OCEAN OPTICS QE65PRO Spectroradiometer	08/22/19
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	08/22/19

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 (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)	3044 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4282
Chromaticity Ordinate y	0.4020
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2459
Chromaticity Ordinate v'	0.5193
Correlated Color Temp CCT (K)	3134
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	9248 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.244
Input Power (Watts)	29.0
Input Power Factor (%)	99.3
Input Current THD (%)	7.5
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	105.0
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.113
Input Power (Watts)	28.6
Input Power Factor (%)	91.8
Input Current THD (%)	5.2
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	80
R12 Strong blue	69
R13 Light yellowish pink (skin)	82
R14 Moderate olive green (leaf)	98

*NOTE:

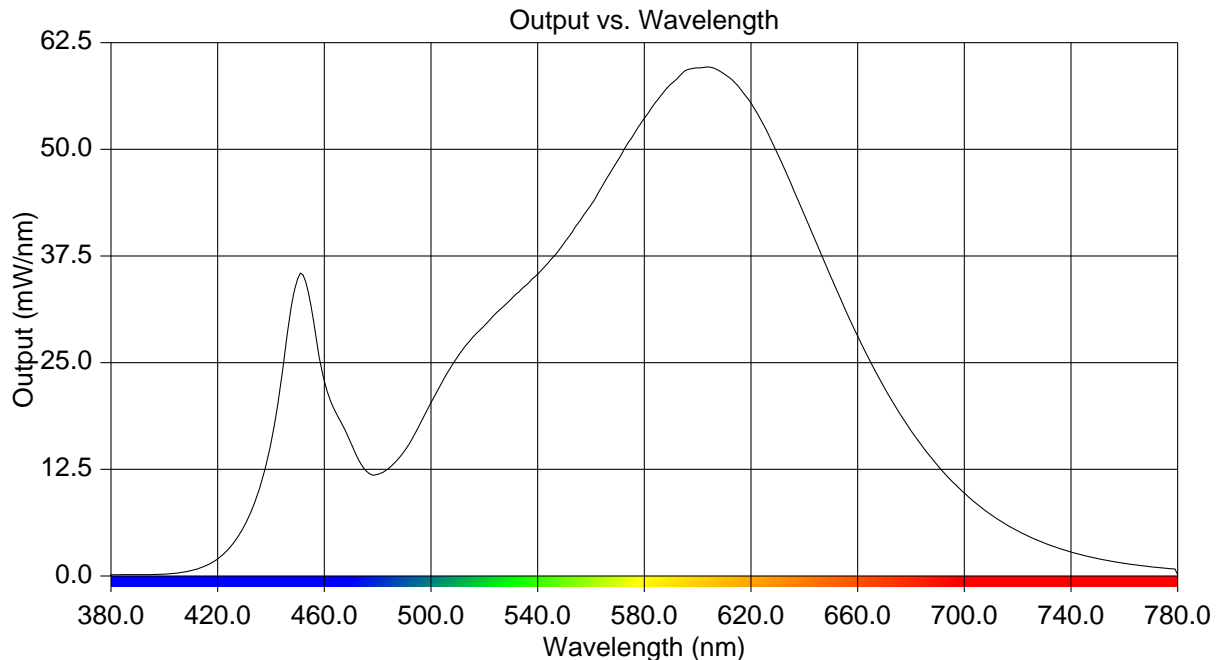
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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	0.138	515	27.714	650	35.009
385	0.149	520	29.334	655	31.462
390	0.152	525	30.981	660	28.098
395	0.172	530	32.434	665	25.004
400	0.223	535	33.922	670	22.066
405	0.352	540	35.351	675	19.448
410	0.616	545	37.110	680	17.011
415	1.134	550	39.051	685	14.868
420	2.029	555	41.273	690	12.944
425	3.465	560	43.475	695	11.215
430	5.916	565	46.148	700	9.709
435	9.607	570	48.711	705	8.360
440	15.607	575	51.220	710	7.196
445	25.706	580	53.639	715	6.170
450	34.834	585	55.807	720	5.286
455	31.667	590	57.629	725	4.512
460	22.870	595	59.152	730	3.866
465	18.732	600	59.548	735	3.288
470	15.563	605	59.626	740	2.804
475	12.535	610	58.829	745	2.400
480	11.935	615	57.487	750	2.046
485	12.869	620	55.455	755	1.737
490	14.640	625	52.746	760	1.483
495	17.264	630	49.470	765	1.262
500	20.324	635	45.988	770	1.083
505	23.181	640	42.313	775	0.925
510	25.759	645	38.649	780	0.138



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CIE Chromaticity Diagram

