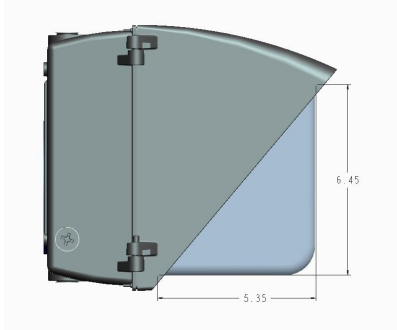
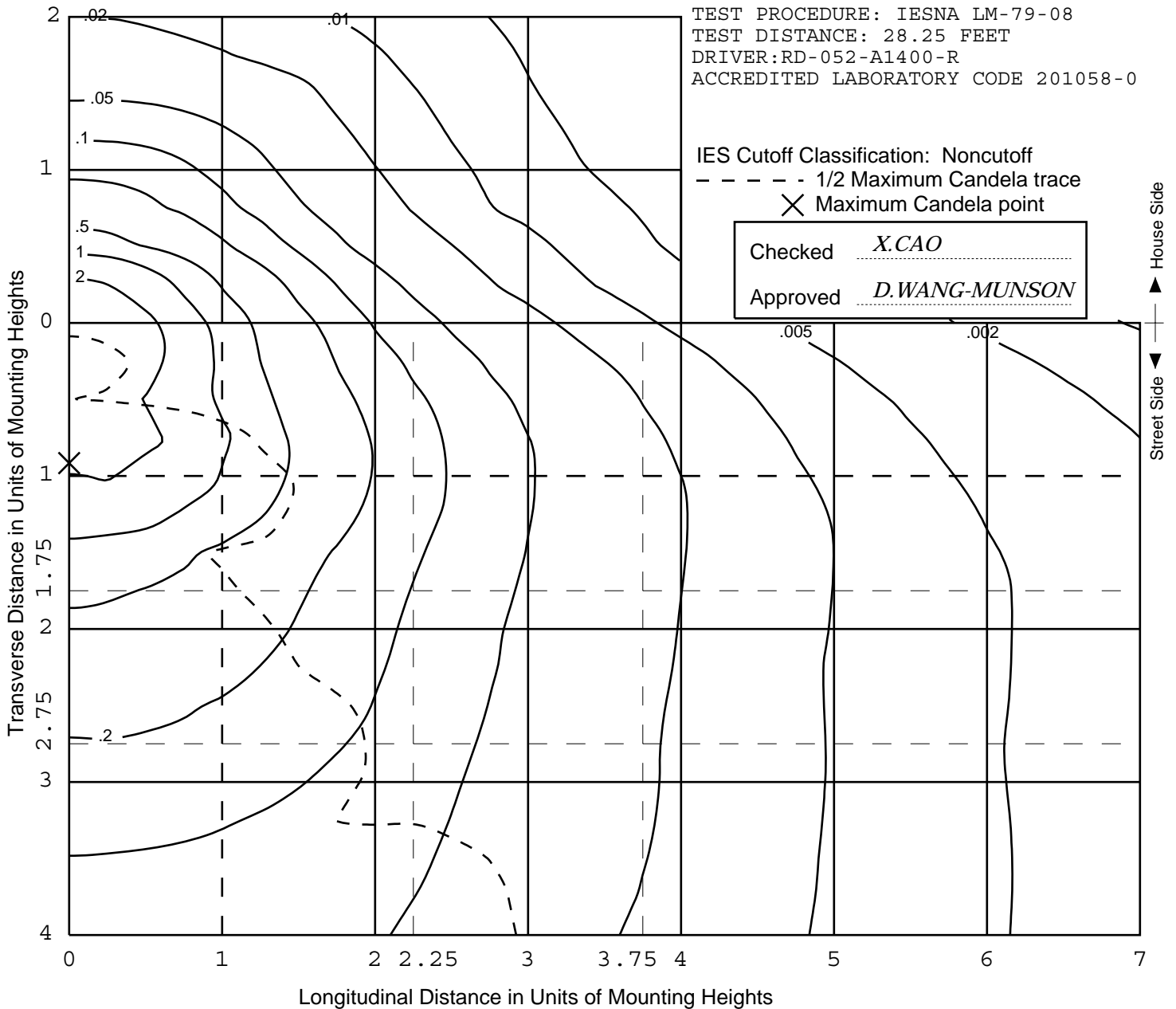


## ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 20 foot mounting height.

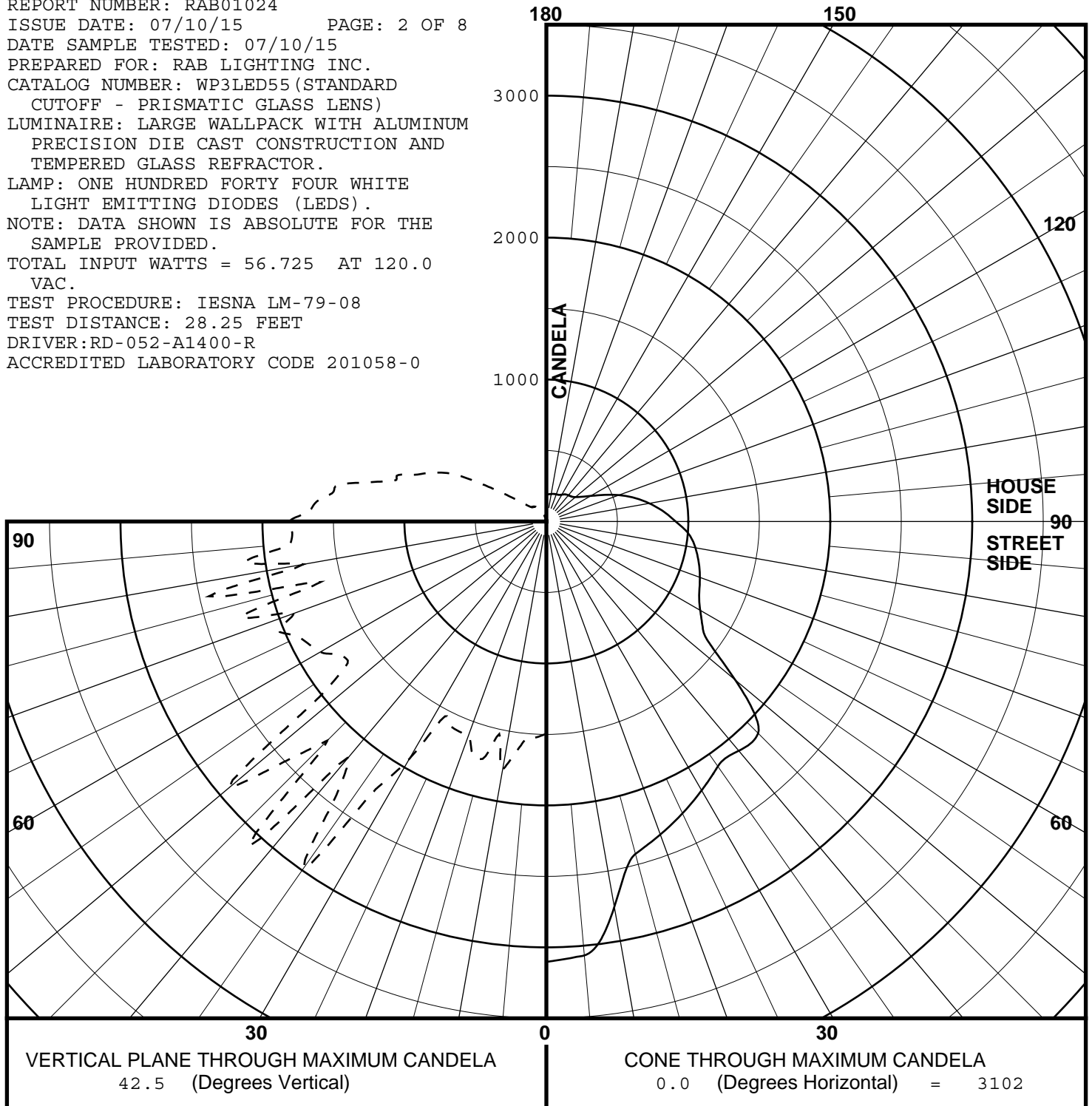


REPORT NUMBER: RAB01024  
 ISSUE DATE: 07/10/15 PAGE: 1 OF 8  
 DATE SAMPLE TESTED: 07/10/15  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: WP3LED55 (STANDARD CUTOFF - PRISMATIC GLASS LENS)  
 LUMINAIRE: LARGE WALLPACK WITH ALUMINUM PRECISION DIE CAST CONSTRUCTION AND TEMPERED GLASS REFRACTOR.  
 LAMP: ONE HUNDRED FORTY FOUR WHITE LIGHT EMITTING DIODES (LEDs).  
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.  
 TOTAL INPUT WATTS = 56.725 AT 120.0 VAC.  
 TEST PROCEDURE: IESNA LM-79-08  
 TEST DISTANCE: 28.25 FEET  
 DRIVER: RD-052-A1400-R  
 ACCREDITED LABORATORY CODE 201058-0



MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

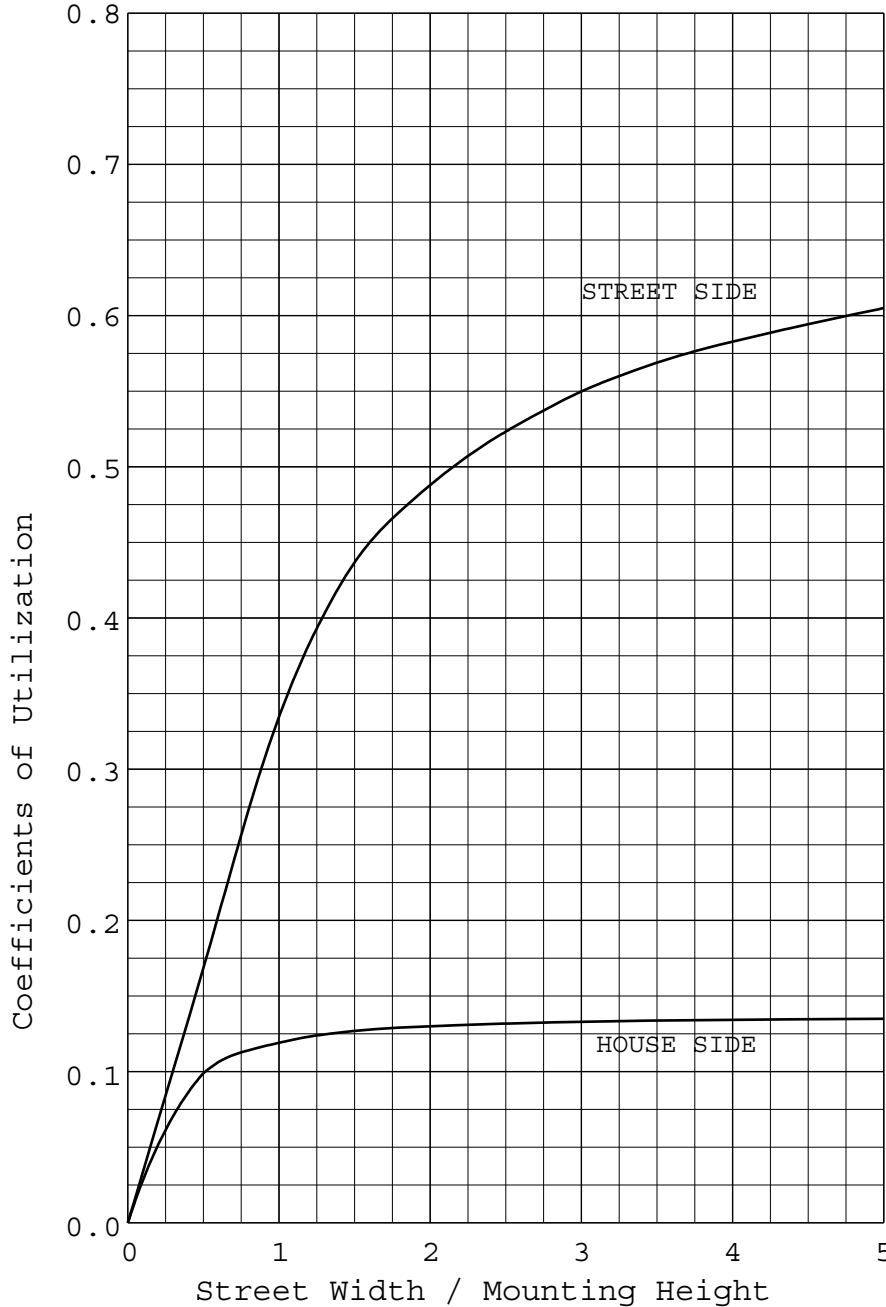
REPORT NUMBER: RAB01024  
 ISSUE DATE: 07/10/15 PAGE: 2 OF 8  
 DATE SAMPLE TESTED: 07/10/15  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: WP3LED55 (STANDARD  
 CUTOFF - PRISMATIC GLASS LENS)  
 LUMINAIRE: LARGE WALLPACK WITH ALUMINUM  
 PRECISION DIE CAST CONSTRUCTION AND  
 TEMPERED GLASS REFRACTOR.  
 LAMP: ONE HUNDRED FORTY FOUR WHITE  
 LIGHT EMITTING DIODES (LEDS).  
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
 SAMPLE PROVIDED.  
 TOTAL INPUT WATTS = 56.725 AT 120.0  
 VAC.  
 TEST PROCEDURE: IESNA LM-79-08  
 TEST DISTANCE: 28.25 FEET  
 DRIVER: RD-052-A1400-R  
 ACCREDITED LABORATORY CODE 201058-0



REPORT NUMBER: RAB01024  
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 PREPARED FOR: RAB LIGHTING INC.

PAGE: 3 OF 8  
 DATE SAMPLE TESTED: 07/10/15

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	4575.	68.9
DOWNWARD HOUSE SIDE	910.	13.7
DOWNWARD TOTAL	5485.	82.5
UPWARD STREET SIDE	1117.	16.8
UPWARD HOUSE SIDE	43.	0.6
UPWARD TOTAL	1160.	17.5
TOTAL FLUX	6645.	100.0

TOTAL INPUT WATTS = 56.7  
 EFFICACY = 117.2 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: RAB01024  
 ISSUE DATE: 07/10/15  
 PREPARED FOR: RAB LIGHTING INC.

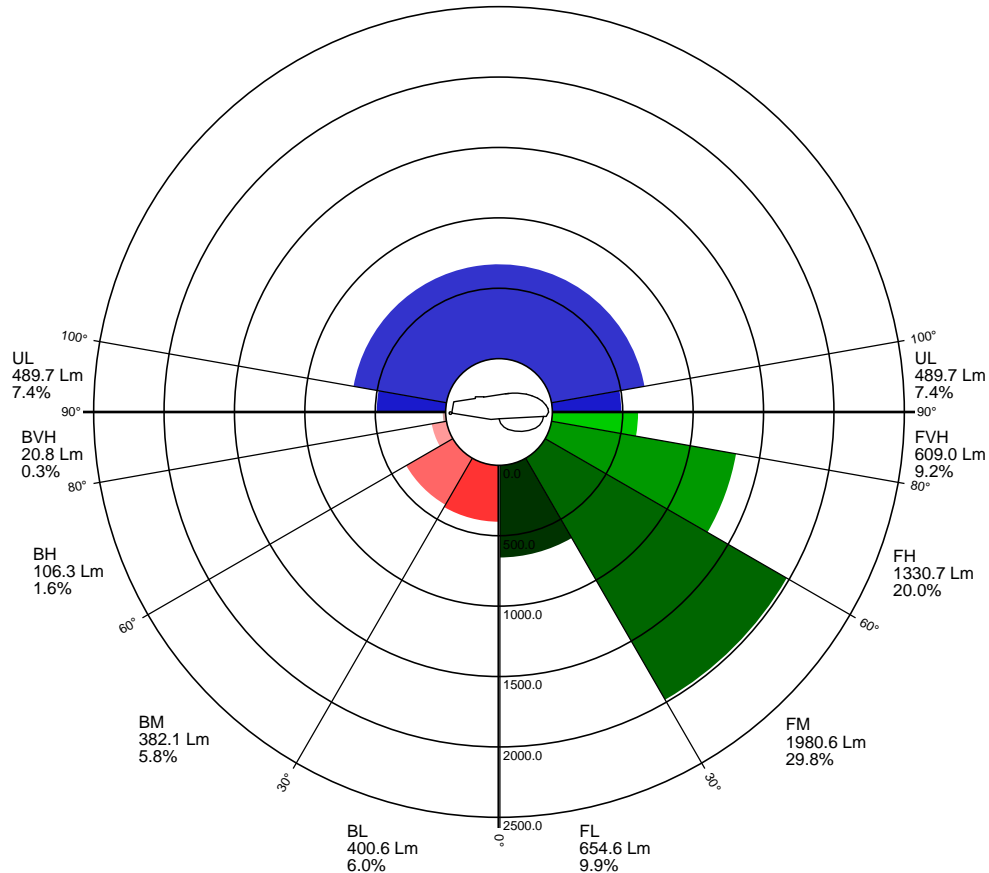
PAGE: 4 OF 8  
 DATE SAMPLE TESTED: 07/10/15

BUG Rating:			B1	U4	G4	
Zonal Summary		Lumens	% of Fixture	Zone Ratings		
				B	U	G
Forward		4575	68.9			
FL	(0° - 30°)	654.6	9.9			
FM	(30° - 60°)	1980.6	29.8			
FH	(60° - 80°)	1330.7	20.0			G1
FVH	(80° - 90°)	609.0	9.2			G4
Backward		910	13.7			
BL	(0° - 30°)	400.6	6.0	B1		
BM	(30° - 60°)	382.1	5.8	B1		
BH	(60° - 80°)	106.3	1.6	B0		G0
BVH	(80° - 90°)	20.8	0.3			G1
Upward		1160	17.5			
UL	(90° - 100°)	489.7	7.4		U3	
UH	(100° - 180°)	670.2	10.1		U4	
Trapped Light		0	0.0			
Total Flux		6645	100.0			

### Zonal Lumen Summary

(Linear scale)

UH  
670.2 Lm  
10.1%

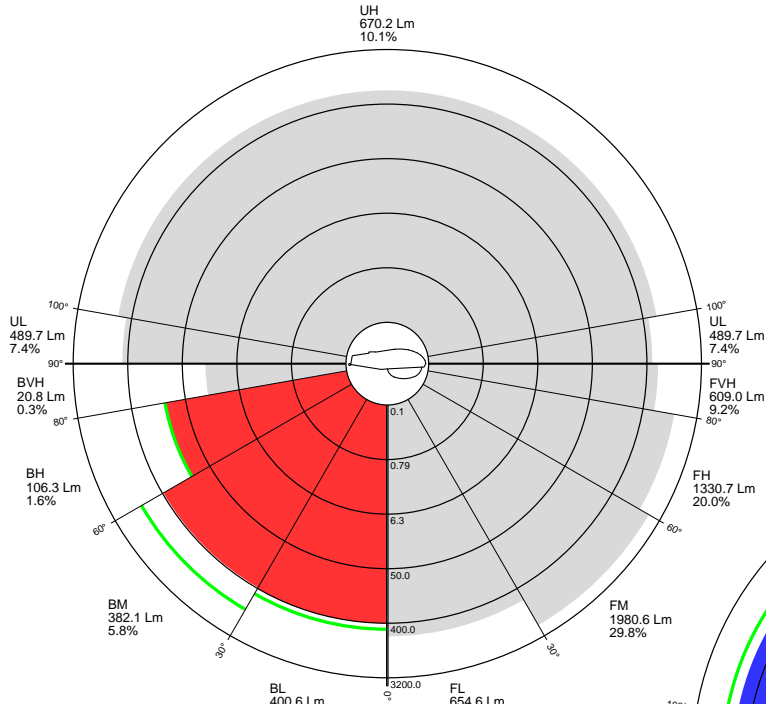


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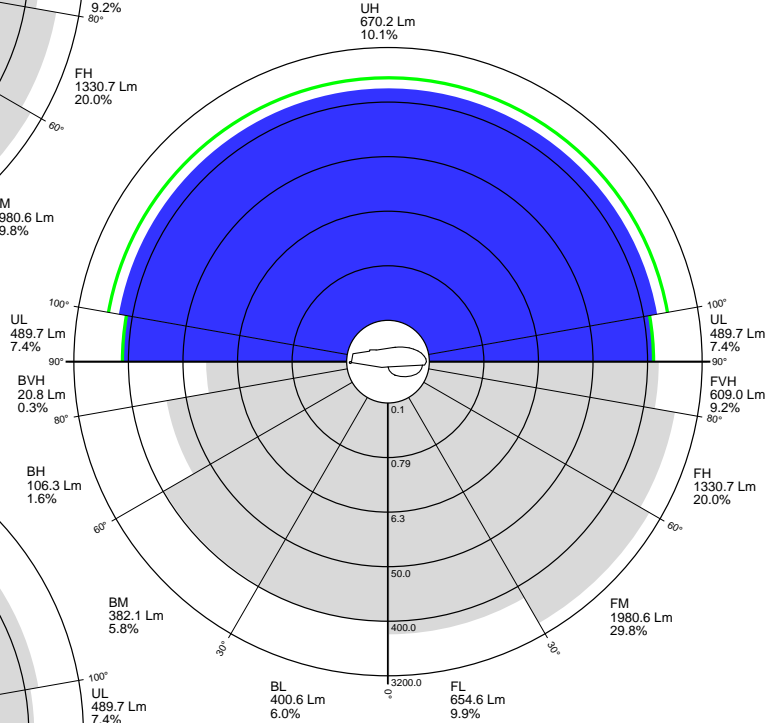
### Backlight Rating Details

(Logarithmic scale)



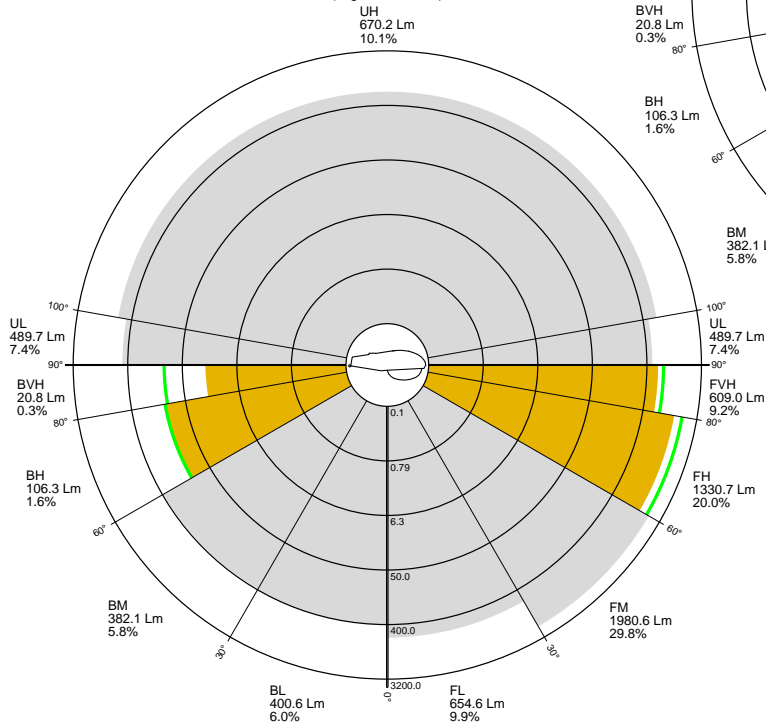
### Uplight Rating Details

(Logarithmic scale)



### Glare Rating Details

(Logarithmic scale)



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 PREPARED FOR: RAB LIGHTING INC.

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 DATE SAMPLE TESTED: 07/10/15

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
180.0	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
175.0	1.	1.	2.	3.	4.	4.	5.	6.	6.	6.
165.0	19.	18.	18.	16.	14.	10.	7.	5.	6.	6.
155.0	56.	55.	54.	53.	47.	34.	25.	16.	9.	8.
145.0	123.	122.	118.	106.	91.	75.	59.	38.	22.	14.
135.0	142.	143.	143.	136.	129.	115.	89.	65.	45.	21.
125.0	293.	288.	264.	235.	200.	150.	117.	81.	65.	34.
115.0	815.	818.	763.	610.	433.	272.	158.	93.	72.	49.
105.0	1112.	1106.	1075.	1012.	830.	575.	362.	172.	83.	58.
95.0	1623.	1643.	1632.	1485.	1198.	865.	580.	360.	186.	62.
90.0	1810.	1828.	1745.	1616.	1386.	1020.	718.	454.	293.	93.
87.5	1792.	1834.	1805.	1737.	1472.	1100.	775.	507.	359.	132.
85.0	1811.	1755.	1691.	1599.	1437.	1142.	834.	559.	426.	183.
V 82.5	2139.	2221.	2130.	2022.	1645.	1153.	853.	611.	495.	245.
E 80.0	1737.	1703.	1663.	1558.	1441.	1220.	900.	658.	566.	307.
R 77.5	2434.	2487.	2322.	2115.	1707.	1239.	886.	728.	615.	366.
T 75.0	1647.	1631.	1608.	1566.	1448.	1200.	921.	785.	661.	406.
I 72.5	2251.	2211.	2186.	1961.	1618.	1246.	936.	847.	715.	437.
C 70.0	1892.	1943.	1829.	1737.	1525.	1226.	1033.	950.	744.	460.
A 67.5	2034.	2013.	1962.	1799.	1527.	1225.	1125.	1051.	766.	485.
L 65.0	1922.	1899.	1860.	1716.	1506.	1239.	1290.	1132.	788.	502.
62.5	1880.	1856.	1792.	1696.	1474.	1457.	1497.	1175.	800.	537.
A 60.0	1838.	1819.	1732.	1650.	1496.	1819.	1564.	1210.	814.	583.
N 57.5	1742.	1723.	1676.	1614.	2025.	1976.	1645.	1209.	835.	635.
G 55.0	1707.	1685.	1671.	1933.	2221.	2005.	1681.	1187.	858.	689.
L 52.5	1964.	1927.	2468.	2616.	2529.	2046.	1749.	1162.	890.	743.
E 50.0	2917.	2911.	2147.	2644.	2065.	2056.	1723.	1142.	936.	803.
47.5	2507.	2475.	3087.	2101.	2354.	2054.	1693.	1127.	998.	866.
45.0	2182.	2160.	2168.	2861.	2473.	2171.	1506.	1145.	1055.	938.
42.5<<	3102.	3068.	2424.	2269.	2106.	2110.	1350.	1188.	1111.	1007.
40.0	2164.	2113.	2781.	2220.	2483.	1929.	1313.	1246.	1171.	1076.
37.5	2430.	2405.	2102.	2788.	2354.	1497.	1350.	1321.	1237.	1147.
35.0	2978.	2945.	2588.	2290.	1780.	1431.	1382.	1367.	1316.	1214.
30.0	1932.	1910.	1636.	1502.	1491.	1461.	1464.	1404.	1457.	1333.
25.0	1594.	1550.	1556.	1549.	1543.	1575.	1569.	1610.	1485.	1405.
20.0	1608.	1571.	1592.	1689.	1560.	1705.	1600.	1442.	1433.	1451.
15.0	1731.	1709.	1762.	1764.	1553.	1732.	1494.	1658.	1548.	1526.
10.0	1777.	1797.	1676.	1597.	1513.	1702.	1639.	1554.	1513.	1509.
5.0	1531.	1529.	1527.	1531.	1562.	1581.	1530.	1525.	1546.	1539.
0.0	1495.	1495.	1495.	1495.	1495.	1495.	1495.	1495.	1495.	1495.
	PLANE OF MAXIMUM CANDELA									
	CONE OF MAXIMUM CANDELA									

REPORT NUMBER: RAB01024  
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 PREPARED FOR: RAB LIGHTING INC.

PAGE: 7 OF 8  
 DATE SAMPLE TESTED: 07/10/15

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	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
	175.0	6.	6.	6.	6.	5.	5.	4.	3.	2.	1.
	165.0	6.	6.	6.	6.	6.	5.	4.	3.	2.	2.
	155.0	8.	8.	7.	6.	6.	5.	5.	4.	3.	3.
	145.0	12.	11.	9.	8.	7.	6.	5.	4.	4.	3.
	135.0	17.	14.	11.	11.	9.	7.	5.	4.	4.	4.
	125.0	25.	21.	16.	16.	13.	9.	6.	5.	4.	4.
	115.0	38.	32.	25.	22.	17.	12.	8.	6.	6.	5.
	105.0	46.	38.	35.	29.	21.	15.	12.	8.	8.	8.
	95.0	47.	47.	44.	38.	26.	19.	15.	11.	10.	10.
	90.0	55.	51.	52.	44.	30.	22.	17.	12.	10.	10.
	87.5	67.	57.	59.	49.	34.	25.	18.	13.	10.	10.
	85.0	88.	67.	68.	57.	42.	30.	19.	13.	10.	10.
V	82.5	121.	79.	79.	67.	54.	40.	27.	19.	12.	12.
E	80.0	165.	95.	87.	77.	65.	49.	37.	29.	24.	22.
R	77.5	212.	118.	94.	84.	76.	59.	48.	36.	34.	33.
T	75.0	256.	148.	99.	87.	86.	69.	57.	45.	40.	43.
I	72.5	294.	181.	105.	92.	93.	82.	65.	55.	45.	48.
C	70.0	329.	215.	116.	101.	98.	93.	72.	67.	54.	50.
A	67.5	363.	255.	133.	113.	105.	105.	82.	78.	69.	61.
L	65.0	396.	296.	158.	127.	117.	118.	95.	85.	84.	81.
	62.5	433.	340.	188.	141.	127.	128.	107.	93.	92.	96.
A	60.0	483.	393.	225.	158.	139.	142.	125.	105.	97.	98.
N	57.5	543.	448.	267.	175.	157.	158.	139.	114.	107.	97.
G	55.0	600.	503.	318.	199.	173.	168.	157.	132.	116.	109.
L	52.5	660.	562.	373.	232.	188.	171.	177.	155.	132.	124.
E	50.0	716.	618.	428.	273.	210.	192.	190.	178.	157.	144.
	47.5	776.	685.	497.	324.	235.	211.	192.	193.	183.	172.
	45.0	840.	757.	569.	382.	264.	223.	209.	200.	196.	189.
	42.5<<	911.	827.	643.	443.	304.	249.	233.	207.	201.	193.
	40.0	981.	901.	721.	522.	358.	274.	233.	237.	214.	204.
	37.5	1047.	971.	793.	604.	429.	311.	253.	236.	242.	235.
	35.0	1117.	1033.	862.	691.	515.	369.	273.	254.	235.	237.
	30.0	1234.	1154.	999.	858.	690.	532.	413.	334.	295.	275.
	25.0	1287.	1235.	1112.	973.	862.	741.	633.	547.	481.	455.
	20.0	1309.	1302.	1199.	1118.	1013.	952.	839.	786.	737.	714.
	15.0	1389.	1394.	1316.	1241.	1157.	1074.	1054.	999.	962.	950.
	10.0	1418.	1377.	1389.	1342.	1302.	1277.	1211.	1186.	1156.	1157.
	5.0	1485.	1431.	1409.	1440.	1397.	1344.	1338.	1342.	1343.	1346.
	0.0	1495.	1495.	1495.	1495.	1495.	1495.	1495.	1495.	1495.	1495.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB01024  
ISSUE DATE: 07/10/15  
PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 8  
DATE SAMPLE TESTED: 07/10/15

5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	35
5- 10	104
10- 15	166
15- 20	218
20- 25	253
25- 30	279
30- 35	330
35- 40	377
40- 45	408
45- 50	433
50- 55	429
55- 60	385
60- 65	368
65- 70	361
70- 75	356
75- 80	352
80- 85	331
85- 90	299
90- 95	266
95-100	224
100-105	181
105-110	144
110-115	110
115-120	76
120-125	48
125-130	32
130-135	23
135-140	19
140-145	14
145-150	10
150-155	6
155-160	4
160-165	2
165-170	1
170-175	0
175-180	0

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	139
0- 20	523
0- 30	1055
0- 40	1762
0- 50	2603
0- 60	3418
0- 70	4146
0- 80	4855
0- 90	5485
0-100	5974
0-110	6300
0-120	6486
0-130	6566
0-140	6608
0-150	6632
0-160	6642
0-170	6644
0-180	6645



REPORT NUMBER: RAB01027  
DATE: 7/13/2015  
PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: WP3LED55 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: LARGE WALLPACK WITH ALUMINUM PRECISION DIE CAST CONSTRUCTION AND TEMPERED GLASS REFRACTOR.

LAMP: ONE HUNDRED FORTY FOUR WHITE LIGHT EMITTING DIODES (LEDS).

DRIVER: RD-052-A1400-R

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 7/9/16  
RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry 7/9/16

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	<u>X.CAO</u>
Approved	<u>D.WANG-MUNSON</u> Lighting Engineer

REPORT NUMBER: RAB01027  
 DATE: 7/13/2015  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: WP3LED55 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

RESULTS:

<b>PHOTOMETRIC</b>	
Total Integrated Flux (lumens)	6645 *
<b>SPECTRORADIOMETRIC</b>	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3436
Chromaticity Ordinate y	0.3547
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2092
Chromaticity Ordinate v'	0.4859
Correlated Color Temp CCT (K)	5066
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	20810 *
<b>ELECTRICAL</b>	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.477
Input Power (Watts)	56.7
Input Power Factor (%)	99.1
Input Current THD (%)	7.6
Input Voltage THD (%)	0.2
<b>EFFICACY (Lumens/Watt)</b>	
117.2	
<b>ELECTRICAL AT MAX NONIMAL INPUT</b>	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.210
Input Power (Watts)	56.7
Input Power Factor (%)	97.5
Input Current THD (%)	7.9
Input Voltage THD (%)	0.2
<b>Off-State Power (Watts)</b>	
0.0	

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	81
R1 Light greyish red	79
R2 Dark greyish yellow	85
R3 Strong yellowish green	90
R4 Moderate yellowish green	82
R5 Light bluish green	81
R6 Light blue	81
R7 Light violet	86
R8 Light reddish purple	67
R9 Strong red	4
R10 Strong yellow	66
R11 Strong green	82
R12 Strong blue	65
R13 Light yellowish pink (skin)	80
R14 Moderate olive green (leaf)	94

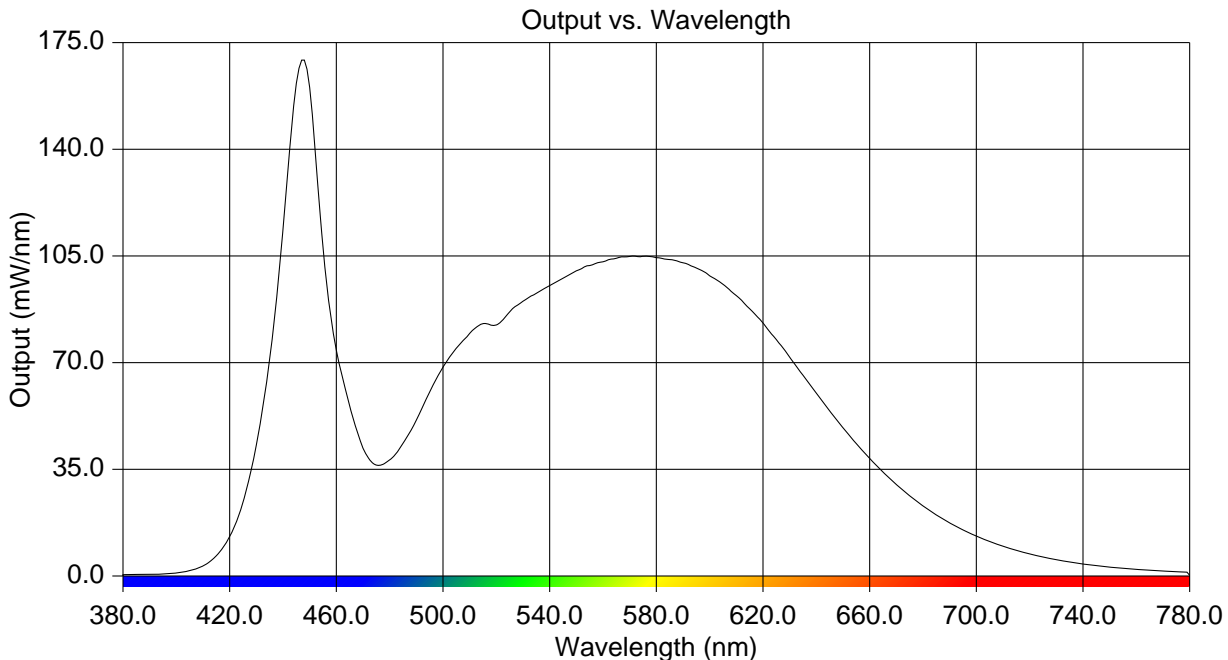
\*NOTE:

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: RAB01027  
 DATE: 7/13/2015  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: WP3LED55 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.417	515	82.798	650	48.571
385	0.481	520	82.368	655	43.432
390	0.526	525	86.676	660	38.574
395	0.686	530	90.161	665	34.110
400	0.995	535	92.796	670	30.023
405	1.722	540	95.301	675	26.311
410	3.285	545	97.724	680	23.002
415	6.640	550	100.135	685	20.047
420	12.848	555	101.862	690	17.419
425	24.161	560	103.098	695	15.116
430	42.975	565	104.251	700	13.086
435	71.339	570	104.855	705	11.322
440	113.629	575	104.917	710	9.757
445	161.642	580	104.453	715	8.423
450	160.324	585	103.893	720	7.238
455	107.932	590	102.774	725	6.216
460	74.094	595	101.106	730	5.339
465	55.803	600	98.494	735	4.589
470	41.926	605	95.765	740	3.952
475	36.392	610	92.004	745	3.390
480	38.107	615	87.688	750	2.935
485	43.501	620	83.034	755	2.520
490	51.148	625	77.574	760	2.168
495	60.477	630	71.808	765	1.864
500	68.586	635	65.880	770	1.626
505	74.821	640	59.967	775	1.403
510	79.603	645	54.211	780	0.212



REPORT NUMBER: RAB01027  
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## CIE Chromaticity Diagram

