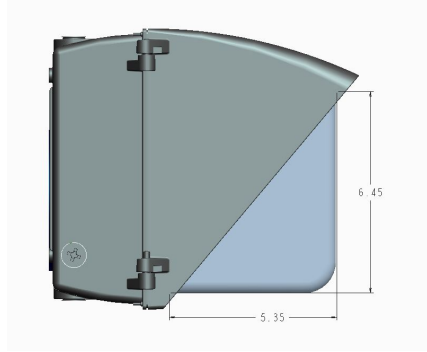


ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

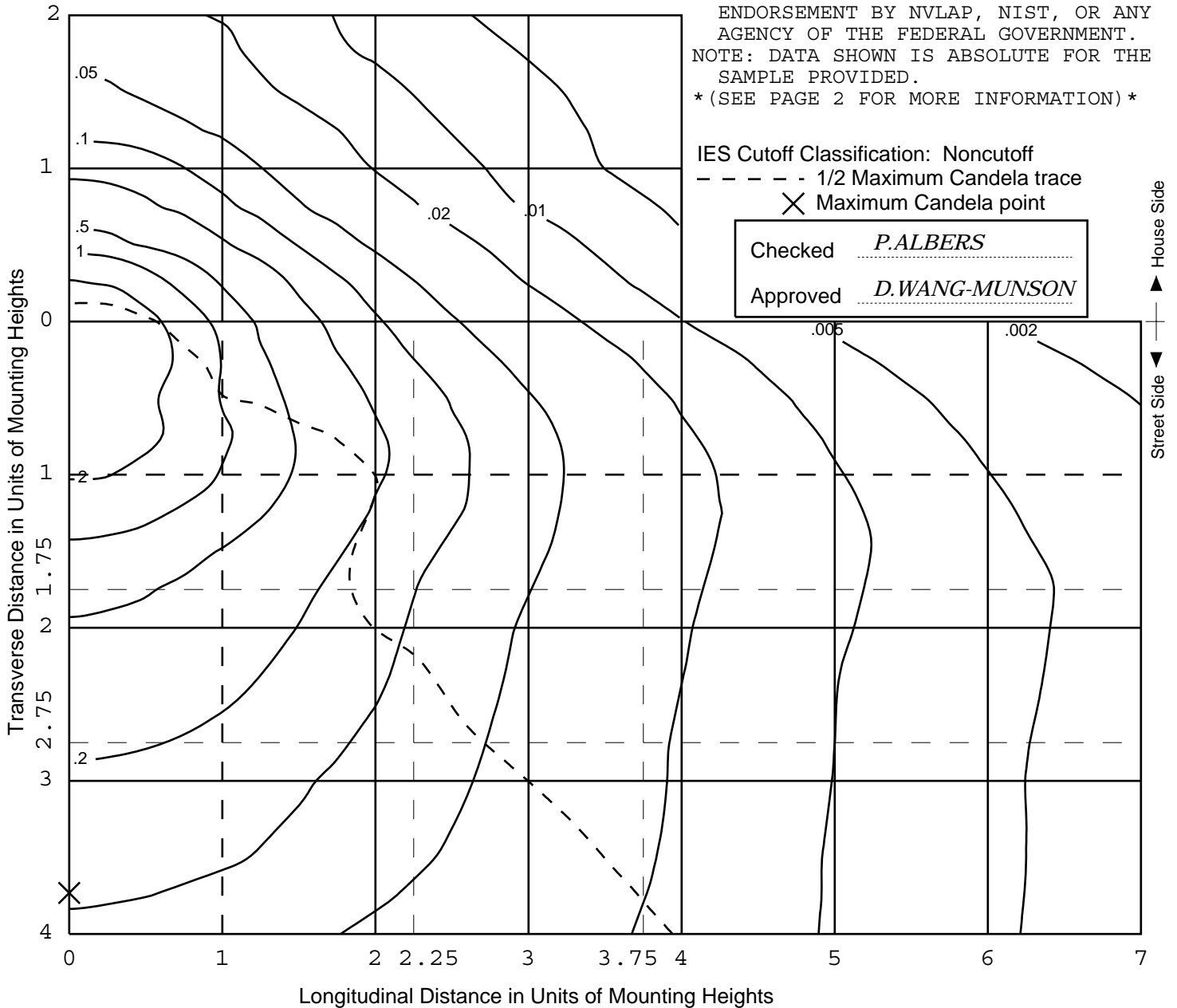
Values based on 20 foot mounting height.



REPORT NUMBER: RAB03104
 ISSUE DATE: 03/28/17 PAGE: 1 OF 9
 DATE SAMPLE TESTED: 03/28/17
 CATALOG NUMBER: WP3LED55N,
 WP3LED55N/D10 (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: 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.
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE
 SAMPLE PROVIDED.
 (SEE PAGE 2 FOR MORE INFORMATION)

IES Cutoff Classification: Noncutoff

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



REPORT NUMBER: RAB03104

PAGE: 2 OF 9

ISSUE DATE: 03/28/17

DATE SAMPLE TESTED: 03/28/17

CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (STANDARD CUTOFF - PRISMATIC GLASS L

ADDITIONAL INFORMATION

TOTAL INPUT WATTS = 55.052 W AT 277.0 VAC.

LED DRIVER: RD-052-A1400-R

TEST PROCEDURE: IESNA LM-79-08

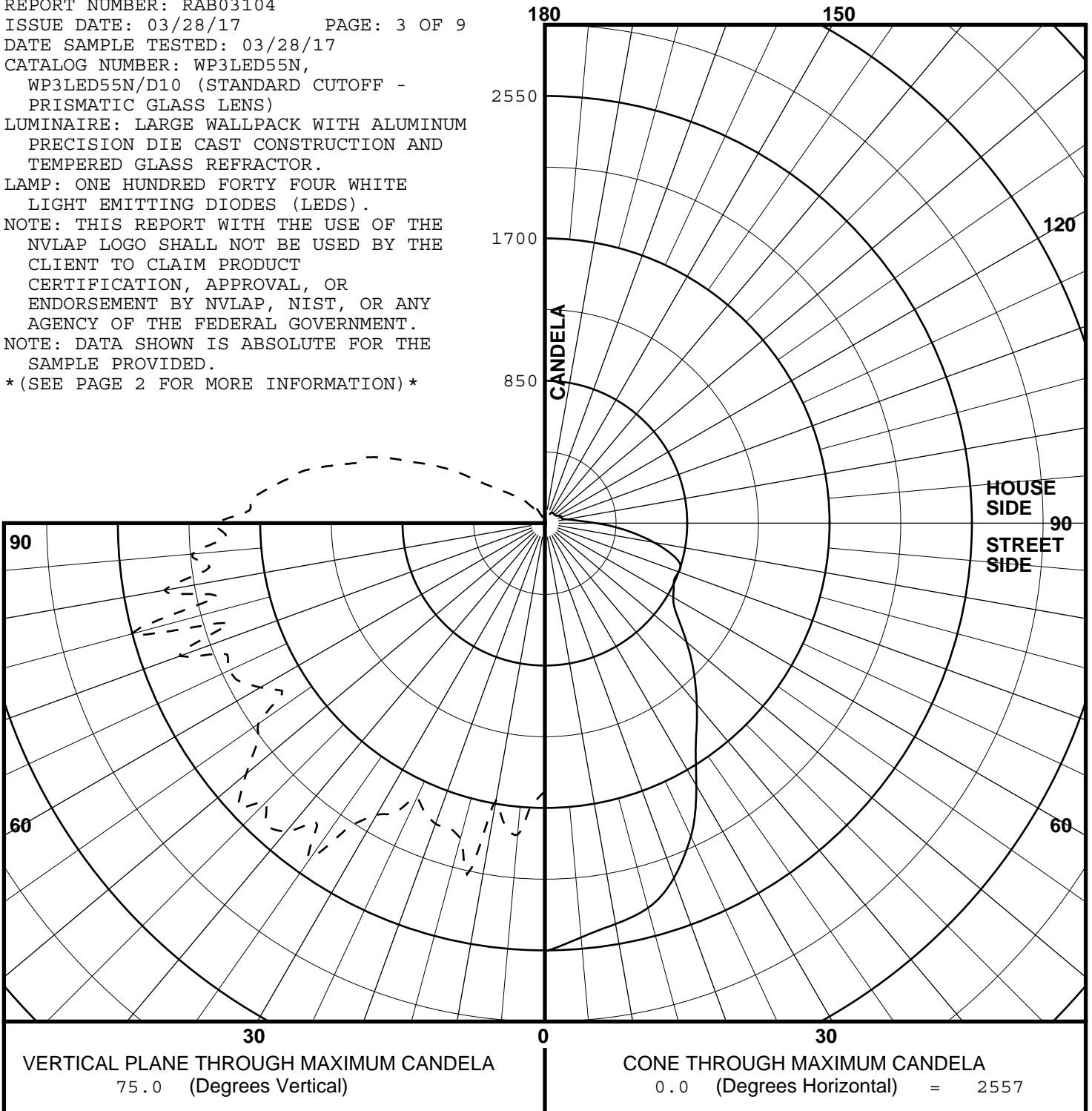
LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE

AMBIENT: 24.4

ACCREDITED LABORATORY CODE 201058-0

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

REPORT NUMBER: RAB03104
ISSUE DATE: 03/28/17 PAGE: 3 OF 9
DATE SAMPLE TESTED: 03/28/17
CATALOG NUMBER: WP3LED55N,
WP3LED55N/D10 (STANDARD CUTOFF -
PRISMATIC GLASS LENS)
LUMINAIRE: LARGE WALLPACK WITH ALUMINUM
PRECISION DIE CAST CONSTRUCTION AND
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CERTIFICATION, APPROVAL, OR
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AGENCY OF THE FEDERAL GOVERNMENT.
NOTE: DATA SHOWN IS ABSOLUTE FOR THE
SAMPLE PROVIDED.
(SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB03104

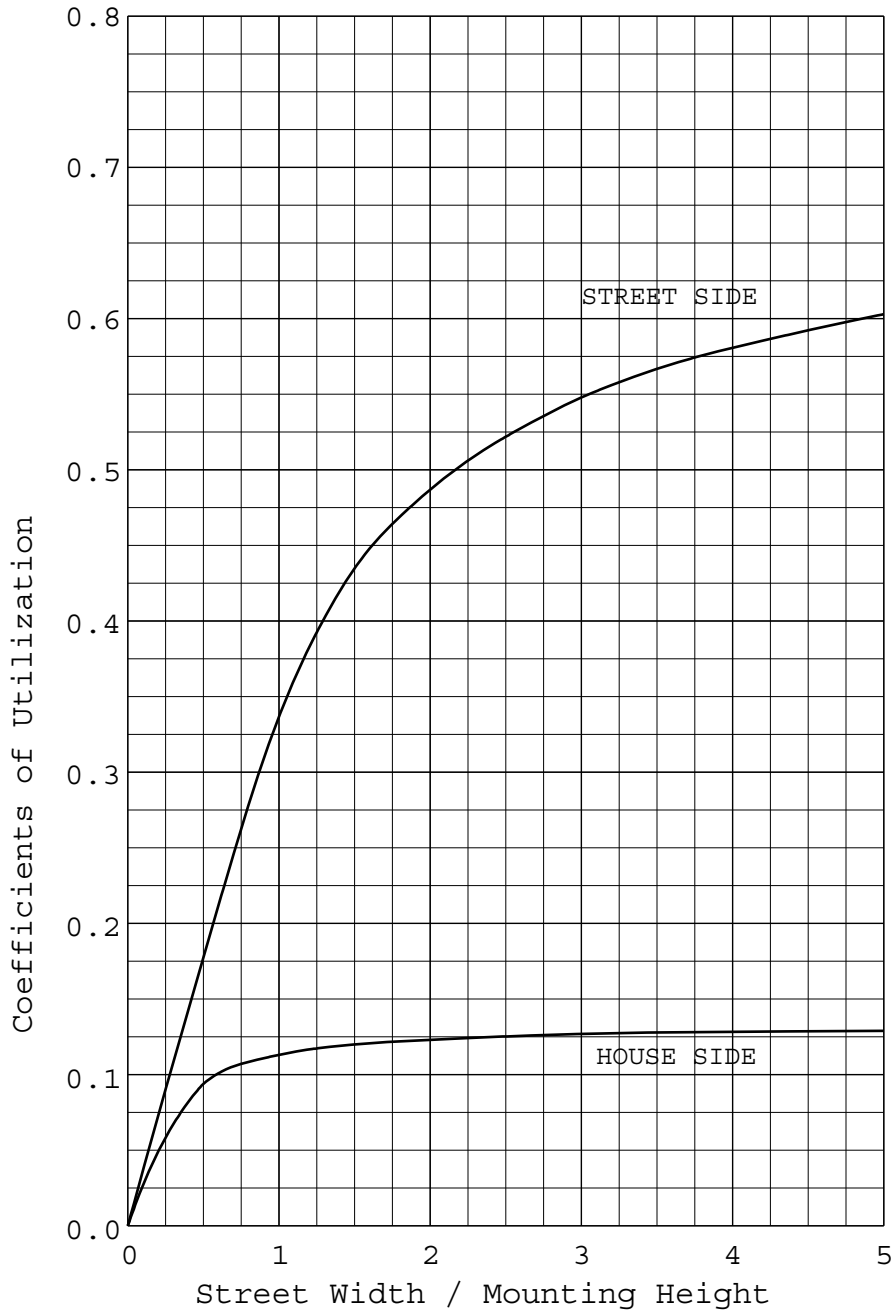
PAGE: 4 OF 9

ISSUE DATE: 03/28/17

DATE SAMPLE TESTED: 03/28/17

CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (STANDARD CUTOFF - PRISMATIC GLASS L

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	4817.	68.7
DOWNWARD HOUSE SIDE	918.	13.1
DOWNWARD TOTAL	5736.	81.7
UPWARD STREET SIDE	1235.	17.6
UPWARD HOUSE SIDE	46.	0.7
UPWARD TOTAL	1281.	18.3
TOTAL FLUX	7017.	100.0

TOTAL INPUT WATTS = 55.1
EFFICACY = 127.4 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: RAB03104

ISSUE DATE: 03/28/17

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DATE SAMPLE TESTED: 03/28/17

CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (STANDARD CUTOFF - PRISMATIC

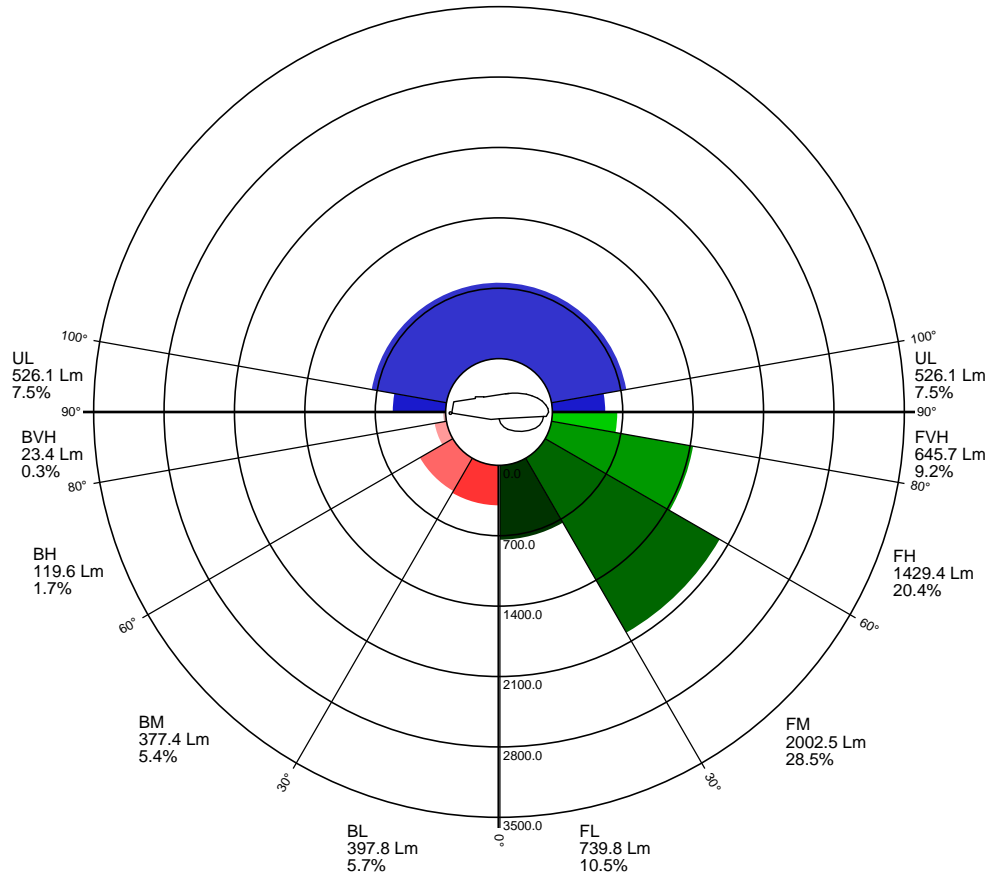
GLASS LENS)

Zonal Summary				Zone Ratings		
				B	U	G
Forward		4817	68.7			
FL	(0° - 30°)	739.8	10.5			
FM	(30° - 60°)	2002.5	28.5			
FH	(60° - 80°)	1429.4	20.4			G1
FVH	(80° - 90°)	645.7	9.2			G4
Backward		918	13.1			
BL	(0° - 30°)	397.8	5.7	B1		
BM	(30° - 60°)	377.4	5.4	B1		
BH	(60° - 80°)	119.6	1.7	B1		G1
BVH	(80° - 90°)	23.4	0.3			G1
Upward		1281	18.3			
UL	(90° - 100°)	526.1	7.5		U4	
UH	(100° - 180°)	754.9	10.8		U4	
Trapped Light		0	0.0			
Total Flux		7017	100.0			

Zonal Lumen Summary

(Linear scale)

UH
754.9 Lm
10.8%



REPORT NUMBER: RAB03104

ISSUE DATE: 03/28/17

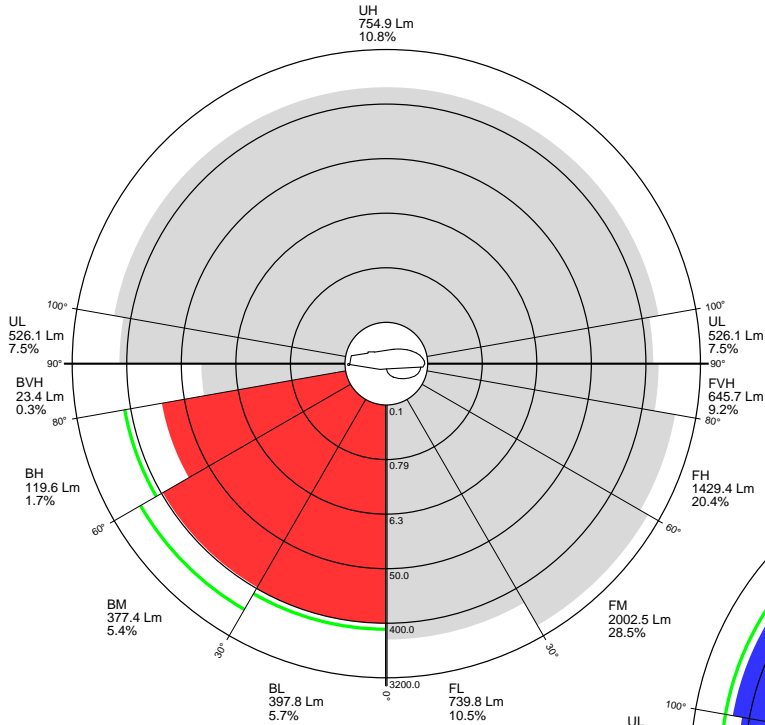
CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

PAGE: 6 OF 9

DATE SAMPLE TESTED: 03/28/17

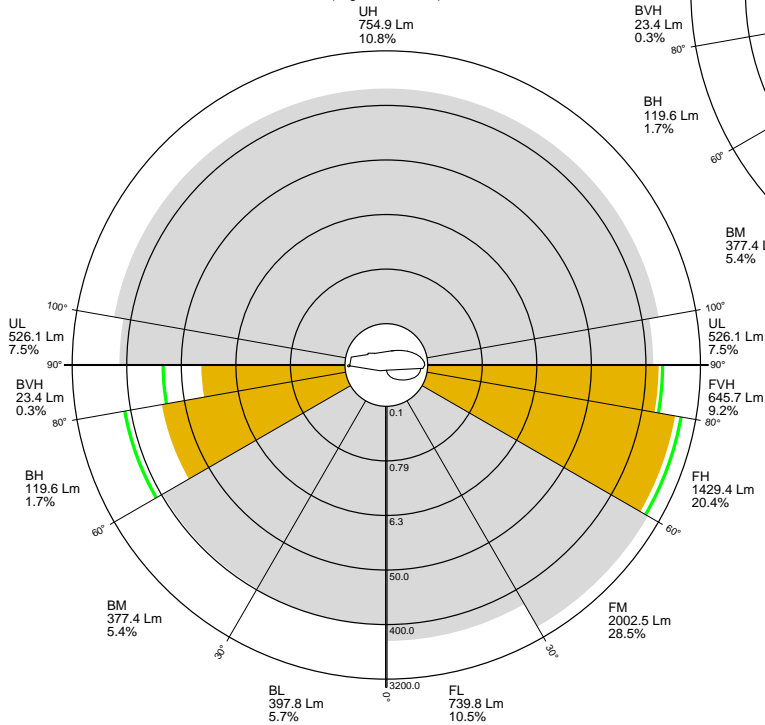
Backlight Rating Details

(Logarithmic scale)



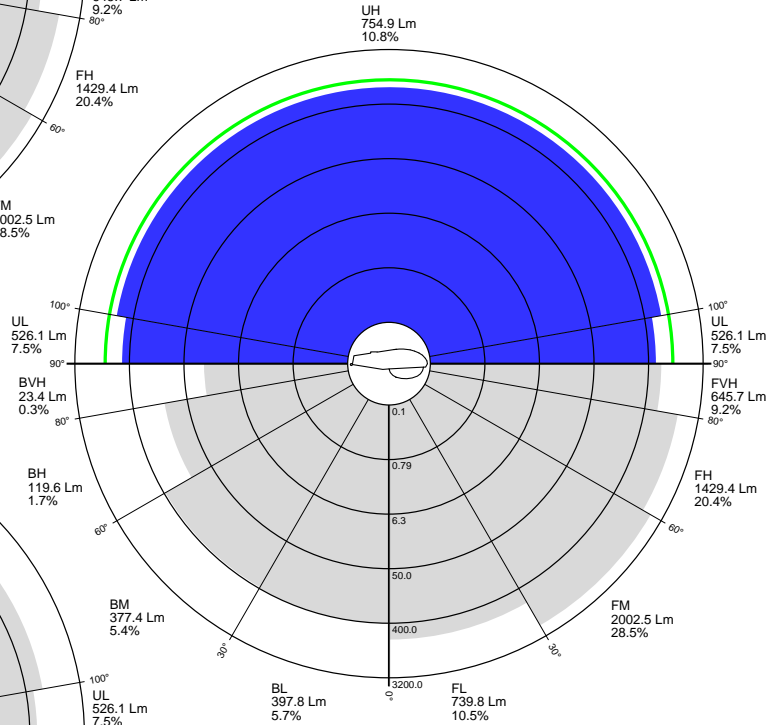
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB03104

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ISSUE DATE: 03/28/17

DATE SAMPLE TESTED: 03/28/17

CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (STANDARD CUTOFF - PRISMATIC GLASS L

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.
	175.0	1.	1.	2.	3.	4.	5.	5.	6.	7.
	165.0	23.	24.	22.	20.	17.	14.	9.	7.	6.
	155.0	54.	54.	52.	50.	44.	38.	31.	21.	9.
	145.0	136.	134.	134.	127.	116.	90.	63.	48.	27.
	135.0	209.	207.	196.	168.	131.	94.	81.	73.	49.
	125.0	371.	364.	343.	317.	250.	187.	116.	69.	60.
	115.0	861.	850.	792.	675.	475.	339.	209.	111.	77.
	105.0	1324.	1314.	1257.	1112.	881.	633.	397.	228.	104.
	95.0	1750.	1715.	1633.	1529.	1292.	953.	644.	426.	238.
	90.0	1958.	1918.	1853.	1692.	1458.	1102.	763.	522.	352.
	87.5	1908.	1876.	1824.	1721.	1495.	1167.	811.	563.	423.
	85.0	2114.	2079.	2033.	1828.	1558.	1194.	841.	617.	492.
V	82.5	2019.	1970.	1881.	1809.	1632.	1235.	873.	659.	573.
E	80.0	2307.	2279.	2273.	2006.	1566.	1264.	905.	701.	662.
R	77.5	2005.	1962.	1888.	1738.	1664.	1286.	932.	784.	745.
T	75.0<<	2557.	2482.	2378.	2063.	1573.	1258.	964.	849.	812.
I	72.5	1984.	1936.	1872.	1731.	1645.	1311.	1011.	1043.	874.
C	70.0	2321.	2287.	2186.	1906.	1553.	1261.	1076.	1132.	926.
A	67.5	2052.	2020.	1993.	1834.	1601.	1330.	1217.	1170.	922.
L	65.0	2079.	2050.	1966.	1745.	1515.	1394.	1451.	1308.	948.
	62.5	2050.	2005.	1929.	1714.	1575.	1632.	1593.	1352.	876.
A	60.0	1961.	1916.	1856.	1733.	1755.	1779.	1688.	1321.	868.
N	57.5	1862.	1839.	1835.	1887.	1888.	1930.	1682.	1392.	887.
G	55.0	2090.	2084.	2081.	2035.	2054.	2000.	1768.	1352.	928.
L	52.5	2168.	2168.	2155.	2200.	2135.	1957.	1799.	1305.	980.
E	50.0	2328.	2328.	2299.	2345.	2179.	2067.	1719.	1197.	1043.
	47.5	2483.	2541.	2468.	2287.	2160.	2022.	1774.	1204.	1117.
	45.0	2360.	2380.	2391.	2327.	2275.	2077.	1595.	1252.	1201.
	42.5	2451.	2460.	2365.	2347.	2192.	1961.	1565.	1329.	1272.
	40.0	2403.	2458.	2485.	2255.	2159.	1805.	1438.	1399.	1323.
	37.5	2247.	2279.	2315.	2337.	2063.	1770.	1452.	1425.	1361.
	35.0	2439.	2457.	2317.	2140.	1887.	1618.	1543.	1463.	1388.
	30.0	2010.	2004.	1992.	1919.	1717.	1678.	1704.	1729.	1435.
	25.0	1809.	1793.	1800.	1837.	1812.	1797.	1620.	1532.	1599.
	20.0	1910.	1902.	1941.	1853.	1960.	1697.	1816.	1911.	1722.
	15.0	1947.	1872.	1777.	1766.	2135.	1682.	2047.	1624.	1670.
	10.0	1681.	1670.	1696.	1980.	2061.	1676.	1753.	1795.	1656.
	5.0	1867.	1866.	1852.	1818.	1785.	1662.	1633.	1637.	1549.
	0.0	1599.	1599.	1599.	1599.	1599.	1599.	1599.	1599.	1599.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB03104

PAGE: 8 OF 9

ISSUE DATE: 03/28/17

DATE SAMPLE TESTED: 03/28/17

CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (STANDARD CUTOFF - PRISMATIC GLASS L

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	7.	7.	6.	6.	6.	5.	4.	3.	2.	1. 1.
	165.0	7.	7.	7.	6.	6.	5.	4.	3.	2.	2. 2.
	155.0	7.	7.	7.	7.	6.	6.	5.	4.	3.	3. 3.
	145.0	10.	8.	7.	7.	7.	6.	5.	4.	4.	3. 3.
	135.0	17.	14.	10.	11.	9.	6.	5.	4.	4.	4. 3.
	125.0	30.	25.	17.	16.	12.	9.	5.	4.	4.	4. 4.
	115.0	50.	41.	31.	24.	17.	12.	8.	5.	5.	5. 5.
	105.0	53.	44.	39.	35.	23.	15.	11.	8.	8.	8. 8.
	95.0	50.	51.	48.	46.	31.	19.	13.	10.	9.	9. 9.
	90.0	55.	53.	59.	55.	36.	22.	15.	11.	10.	10. 10.
	87.5	74.	59.	67.	62.	41.	26.	17.	11.	10.	10. 10.
	85.0	103.	71.	73.	71.	47.	32.	18.	11.	9.	10. 10.
V	82.5	143.	91.	82.	81.	54.	47.	30.	21.	20.	22. 24.
E	80.0	195.	115.	91.	91.	63.	61.	42.	36.	33.	34. 36.
R	77.5	252.	146.	99.	98.	71.	68.	60.	48.	48.	46. 47.
T	75.0<<	307.	187.	106.	100.	79.	73.	79.	58.	59.	60. 60.
I	72.5	353.	229.	117.	103.	86.	76.	95.	67.	65.	72. 72.
C	70.0	392.	270.	133.	104.	91.	79.	103.	84.	71.	76. 77.
A	67.5	419.	311.	156.	110.	100.	83.	100.	105.	81.	79. 79.
L	65.0	453.	355.	186.	118.	109.	88.	92.	122.	97.	87. 86.
	62.5	492.	397.	220.	133.	119.	102.	91.	120.	123.	102. 102.
A	60.0	526.	436.	256.	152.	131.	116.	100.	108.	140.	134. 134.
N	57.5	576.	482.	297.	179.	143.	133.	115.	104.	123.	149. 151.
G	55.0	627.	530.	342.	209.	159.	151.	133.	116.	112.	126. 129.
L	52.5	686.	588.	392.	242.	180.	167.	155.	135.	121.	113. 112.
E	50.0	753.	646.	440.	278.	205.	181.	175.	157.	144.	132. 132.
	47.5	821.	706.	496.	315.	233.	197.	193.	181.	172.	164. 165.
	45.0	892.	776.	556.	364.	265.	217.	203.	199.	194.	191. 190.
	42.5	959.	846.	621.	419.	300.	241.	215.	212.	203.	200. 199.
	40.0	1030.	918.	685.	487.	339.	268.	232.	223.	211.	205. 206.
	37.5	1095.	988.	757.	553.	398.	302.	260.	234.	224.	215. 215.
	35.0	1160.	1054.	822.	635.	464.	344.	295.	254.	244.	234. 233.
	30.0	1271.	1184.	959.	790.	639.	511.	399.	335.	301.	289. 289.
	25.0	1378.	1281.	1091.	955.	839.	716.	618.	532.	462.	424. 427.
	20.0	1497.	1368.	1235.	1126.	980.	888.	815.	763.	704.	681. 675.
	15.0	1578.	1432.	1315.	1221.	1154.	1052.	1037.	950.	898.	870. 862.
	10.0	1613.	1549.	1427.	1341.	1323.	1214.	1200.	1146.	1138.	1112. 1106.
	5.0	1589.	1613.	1494.	1426.	1405.	1367.	1355.	1343.	1337.	1325. 1329.
	0.0	1599.	1599.	1599.	1599.	1599.	1599.	1599.	1599.	1599.	1599. 1599.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB03104
ISSUE DATE: 03/28/17
PREPARED FOR: RAB LIGHTING INC.

PAGE: 9 OF 9
DATE SAMPLE TESTED: 03/28/17

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	37
5- 10	109
10- 15	178
15- 20	234
20- 25	277
25- 30	302
30- 35	338
35- 40	374
40- 45	407
45- 50	427
50- 55	425
55- 60	408
60- 65	396
65- 70	391
70- 75	387
75- 80	375
80- 85	351
85- 90	319
90- 95	282
95-100	244
100-105	202
105-110	161
110-115	123
115-120	85
120-125	57
125-130	39
130-135	28
135-140	20
140-145	15
145-150	11
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	147
0- 20	558
0- 30	1138
0- 40	1850
0- 50	2684
0- 60	3517
0- 70	4305
0- 80	5066
0- 90	5736
0-100	6262
0-110	6625
0-120	6833
0-130	6929
0-140	6977
0-150	7003
0-160	7013
0-170	7016
0-180	7017

REPORT NUMBER: RAB03105
 DATE: 3/24/2017
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (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:	GWINSTEK PROGRAMMABLE AC POWER SOURCE APS-7100	Calibration Due:
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	N/A
	OCEAN OPTICS QE65PRO Spectroradiometer	3/01/18
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	03/07/18

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: RAB03105
 DATE: 3/24/2017
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	7017 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3775
Chromaticity Ordinate y	0.3771
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2230
Chromaticity Ordinate v'	0.5013
Correlated Color Temp CCT (K)	4083
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	21450 *
ELECTRICAL	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.206
Input Power (Watts)	55.1
Input Power Factor (%)	96.4
Input Current THD (%)	8.0
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	127.4
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.462
Input Power (Watts)	55.0
Input Power Factor (%)	99.3
Input Current THD (%)	7.1
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	83
R1 Light greyish red	81
R2 Dark greyish yellow	89
R3 Strong yellowish green	95
R4 Moderate yellowish green	83
R5 Light bluish green	82
R6 Light blue	85
R7 Light violet	87
R8 Light reddish purple	65
R9 Strong red	10
R10 Strong yellow	74
R11 Strong green	82
R12 Strong blue	67
R13 Light yellowish pink (skin)	83
R14 Moderate olive green (leaf)	97

*NOTE:

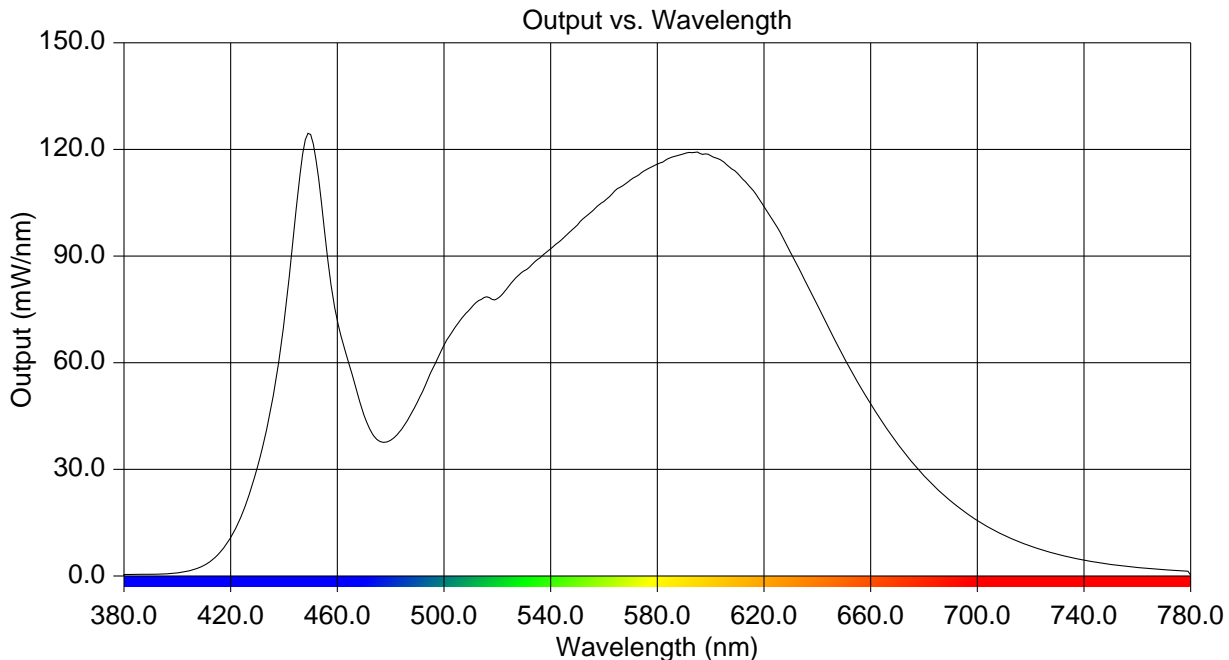
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB03105
 DATE: 3/24/2017
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.400	515	78.312	650	61.475
385	0.433	520	78.011	655	54.649
390	0.473	525	82.185	660	48.345
395	0.601	530	85.815	665	42.643
400	0.868	535	88.977	670	37.302
405	1.552	540	92.007	675	32.455
410	2.987	545	95.205	680	28.243
415	5.824	550	98.680	685	24.427
420	10.770	555	102.216	690	21.053
425	18.764	560	105.351	695	18.195
430	30.527	565	108.938	700	15.615
435	46.679	570	111.427	705	13.390
440	71.226	575	113.912	710	11.434
445	106.178	580	115.819	715	9.804
450	124.156	585	117.696	720	8.407
455	98.374	590	118.757	725	7.157
460	71.826	595	119.244	730	6.127
465	58.083	600	118.224	735	5.233
470	45.210	605	116.401	740	4.447
475	38.394	610	113.318	745	3.812
480	38.199	615	109.213	750	3.266
485	42.330	620	103.865	755	2.785
490	48.868	625	98.055	760	2.398
495	57.189	630	90.953	765	2.060
500	64.930	635	83.615	770	1.768
505	70.823	640	76.158	775	1.524
510	75.256	645	68.698	780	0.229



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CATALOG NUMBER: WP3LED55N, WP3LED55N/D10 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

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CIE Chromaticity Diagram

