

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P392691

Luminaire Tested: **MWL-4-55-45-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392691
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-1 &
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MWL-4-55-45-UNV-L830-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

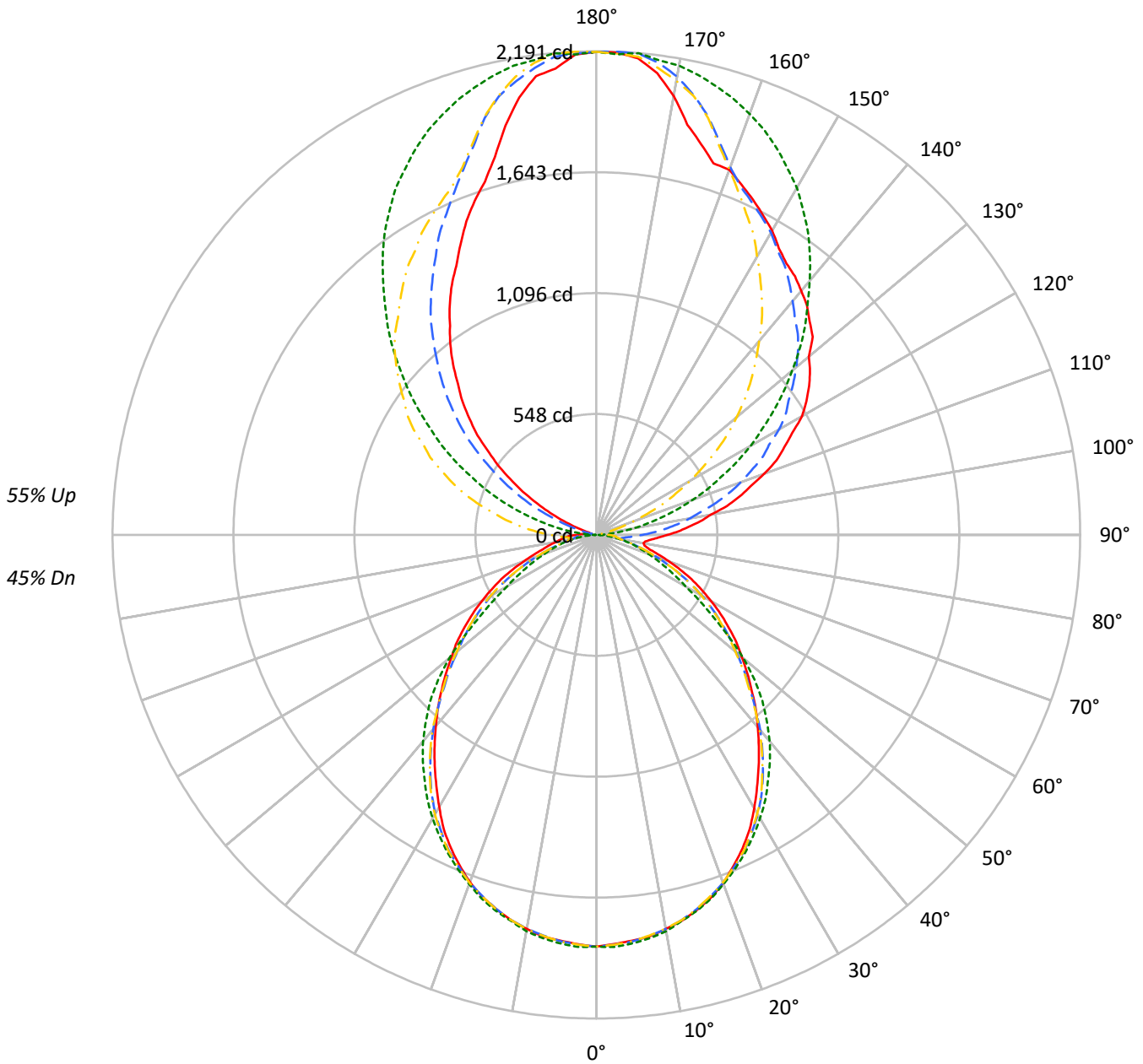
Lumens per Lamp: N/A
Luminaire Lumens: 9588.0 lumens
Efficiency: N/A
Efficacy: 87.1 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 110.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° ··· 90°-270° - · 135°-315°



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20	
RC	80					70					50					30					10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45				
1	97	93	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44	38				
2	88	81	75	70	81	75	69	65	62	59	55	51	49	46	41	39	37	33				
3	81	72	64	59	74	66	60	55	55	51	47	46	42	39	36	34	32	28				
4	74	64	56	50	68	59	52	47	49	44	40	41	37	34	33	30	28	24				
5	68	57	49	43	62	52	45	40	44	39	35	37	33	30	30	27	25	21				
6	63	51	43	37	57	47	40	35	40	35	31	33	29	26	27	24	22	19				
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	25	22	19	17				
8	54	42	34	29	49	39	32	27	33	28	24	28	24	21	23	20	17	15				
9	50	38	31	26	46	36	29	24	30	25	22	26	22	19	21	18	16	14				
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	14	12				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	12047	12047	12047	12047
5°	11855	11078	11855	11078
10°	11675	10164	11675	10164
15°	11442	9294	11412	9294
20°	11113	8485	11083	8485
25°	10645	7731	10614	7731
30°	10053	7009	10009	7009
35°	9412	6287	9377	6287
40°	8814	5597	8765	5597
45°	8223	4853	8184	4853
50°	7676	3988	7634	3988
55°	7161	2981	7130	2981
60°	6569	2209	6552	2209
65°	5945	1680	5945	1680
70°	5105	1259	5127	1259
75°	4418	909	4503	909
80°	5062	581	4374	581
85°	8345	272	4949	272



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	175.7	1.8
10°-20°	495.4	5.2
20°-30°	726.4	7.6
30°-40°	822.6	8.6
40°-50°	775.0	8.1
50°-60°	619.1	6.5
60°-70°	407.3	4.2
70°-80°	209.5	2.2
80°-90°	127.6	1.3
90°-100°	180.3	1.9
100°-110°	339.7	3.5
110°-120°	581.5	6.1
120°-130°	789.9	8.2
130°-140°	901.0	9.4
140°-150°	898.7	9.4
150°-160°	782.6	8.2
160°-170°	550.6	5.7
170°-180°	205.1	2.1
0°-30°	1397.5	14.6
0°-40°	2220.1	23.2
0°-60°	3614.3	37.7
0°-90°	4358.6	45.5
90°-120°	1101.5	11.5
90°-150°	3691.1	38.5
90°-180°	5229.0	54.5
0°-180°	9588.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1865	1865	1865	1865	1865	
5°	1845	1858	1845	1858	1845	175
15°	1759	1762	1754	1762	1759	495
25°	1566	1591	1562	1591	1566	720
35°	1281	1356	1276	1356	1281	801
45°	994	1063	989	1063	994	769
55°	731	643	727	643	731	654
65°	476	346	476	346	476	469
75°	246	172	251	172	246	275
85°	247	46	146	46	247	196
90°	321	2	90	2	321	177
95°	419	63	53	63	419	366
105°	671	305	20	305	671	707
115°	939	625	216	625	939	932
125°	1176	979	535	979	1176	1050
135°	1366	1336	859	1336	1366	1054
145°	1500	1672	1156	1672	1500	946
155°	1677	1933	1454	1933	1677	773
165°	1833	2103	1772	2103	1833	520
175°	2167	2191	2121	2191	2167	202
180°	2188	2188	2188	2188	2188	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3
2.5°	1854.9	1861.9	1858.2	1869.3	1868.4	1867.8	1858.2	1861.9	1856.5	1861.9	1858.2
5°	1845.3	1852.3	1849.6	1857.3	1858.2	1857.3	1848.0	1852.3	1845.3	1852.3	1848.0
7.5°	1835.4	1837.5	1832.7	1843.8	1843.8	1842.3	1831.1	1835.9	1835.4	1835.9	1831.1
10°	1812.9	1817.3	1812.5	1823.1	1823.1	1821.5	1811.0	1814.2	1812.9	1814.2	1811.0
12.5°	1790.1	1790.4	1787.0	1795.6	1791.2	1795.6	1787.0	1787.4	1787.0	1787.4	1787.0
15°	1759.0	1756.8	1755.3	1764.9	1762.4	1763.4	1753.8	1753.8	1754.4	1753.8	1753.8
17.5°	1723.4	1721.3	1717.9	1726.9	1727.9	1726.9	1716.3	1719.8	1718.8	1719.8	1716.3
20°	1678.3	1676.8	1677.6	1684.7	1684.0	1683.0	1676.0	1673.7	1673.7	1673.7	1676.0
22.5°	1623.0	1628.8	1629.6	1640.5	1638.9	1638.9	1628.0	1625.7	1620.0	1625.7	1628.0
25°	1566.4	1573.1	1583.1	1591.6	1590.9	1589.9	1580.0	1568.5	1561.8	1568.5	1580.0
27.5°	1504.0	1511.7	1521.7	1541.3	1538.1	1539.7	1518.6	1507.1	1499.4	1507.1	1518.6
30°	1429.1	1440.7	1462.7	1483.3	1482.4	1480.2	1458.1	1436.1	1422.9	1436.1	1458.1
32.5°	1354.3	1365.8	1392.7	1419.9	1423.6	1416.9	1388.1	1359.6	1348.0	1359.6	1388.1
35°	1280.8	1288.4	1315.3	1354.7	1355.7	1350.0	1310.6	1283.7	1276.1	1283.7	1310.6
37.5°	1207.8	1209.7	1235.6	1282.7	1290.2	1278.0	1230.9	1205.0	1203.1	1205.0	1230.9
40°	1136.8	1132.0	1154.1	1201.5	1221.0	1198.3	1147.8	1125.7	1130.5	1125.7	1147.8
42.5°	1067.7	1057.1	1064.2	1121.8	1142.3	1118.6	1059.5	1050.9	1061.4	1050.9	1059.5
45°	994.1	981.7	981.7	1033.5	1062.7	1030.3	975.4	977.0	989.4	977.0	975.4
47.5°	926.9	911.6	904.9	947.5	971.5	945.9	898.6	906.9	922.2	906.9	898.6
50°	858.8	846.3	827.1	852.5	870.0	849.3	820.9	840.1	854.1	840.1	820.9
52.5°	800.2	783.0	756.5	765.1	752.9	761.9	751.8	776.7	795.5	776.7	751.8
55°	730.6	721.0	688.3	678.1	642.9	675.0	683.6	716.3	727.4	716.3	683.6
57.5°	667.2	661.4	620.2	584.0	550.8	580.9	615.5	656.7	664.0	656.7	615.5
60°	600.3	597.4	553.3	498.9	467.3	497.4	550.2	594.4	598.8	594.4	550.2
62.5°	536.0	532.2	483.2	418.3	404.3	416.8	480.1	529.1	534.5	529.1	480.1
65°	475.9	465.3	414.5	349.2	345.7	347.7	412.9	463.8	475.9	463.8	412.9
67.5°	411.6	395.3	347.3	291.0	295.8	291.0	345.7	393.7	411.6	393.7	345.7
70°	347.7	326.5	288.2	242.1	249.8	242.1	288.2	328.1	349.2	328.1	288.2
72.5°	291.0	267.0	232.5	197.9	208.9	196.4	232.5	268.6	294.1	268.6	232.5
75°	245.9	218.1	182.0	157.0	172.4	157.0	183.5	219.6	250.6	219.6	183.5
77.5°	223.7	183.0	139.8	121.5	138.8	121.5	141.3	178.3	217.6	178.3	141.3
80°	216.5	174.9	115.6	90.8	104.2	90.8	112.5	150.1	187.1	150.1	112.5
82.5°	223.7	182.0	114.0	64.9	73.5	64.9	95.4	126.4	165.0	126.4	95.4
85°	246.7	211.1	133.6	55.1	45.7	52.0	88.8	116.8	146.3	116.8	88.8
87.5°	280.3	251.0	164.0	67.8	15.4	46.2	75.9	102.6	121.1	102.6	75.9
90°	321.4	297.3	209.1	88.7	2.5	29.9	56.1	79.4	89.6	79.4	56.1
92.5°	372.0	350.6	256.7	126.0	25.7	19.4	44.9	64.7	69.2	64.7	44.9
95°	418.9	410.6	312.5	166.4	62.8	11.9	34.4	52.0	52.6	52.0	34.4
97.5°	475.4	468.6	369.1	217.3	110.7	19.5	27.5	43.6	42.6	43.6	27.5
100°	526.1	523.5	429.0	283.7	169.4	51.9	19.5	38.3	39.3	38.3	19.5
102.5°	605.5	584.1	486.7	347.2	232.8	96.8	26.1	27.7	30.6	27.7	26.1
105°	671.0	646.6	561.4	413.6	305.4	157.0	62.2	25.2	20.4	25.2	62.2
107.5°	731.8	715.4	629.4	482.5	382.7	227.6	114.7	60.1	39.4	60.1	114.7
110°	808.1	789.5	695.8	550.6	464.0	301.8	175.0	109.5	84.8	109.5	175.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	882.2	868.4	757.6	621.6	547.5	382.1	249.2	171.3	148.1	171.3	249.2
115°	939.4	931.7	828.8	688.1	624.8	473.3	331.1	244.0	216.2	244.0	331.1
117.5°	999.7	998.2	881.3	756.1	717.5	555.2	406.8	316.6	287.3	316.6	406.8
120°	1075.4	1063.1	954.9	824.1	805.5	641.8	491.3	400.1	370.7	400.1	491.3
122.5°	1127.9	1120.3	1016.7	889.0	889.0	729.9	571.6	480.4	449.5	480.4	571.6
125°	1175.9	1172.8	1063.1	953.9	978.7	811.8	661.3	568.5	534.6	568.5	661.3
127.5°	1219.1	1223.8	1123.3	1026.0	1069.9	896.1	749.4	647.3	611.8	647.3	749.4
130°	1256.3	1271.7	1180.5	1090.9	1156.4	987.3	828.2	726.1	703.0	726.1	828.2
132.5°	1328.9	1319.6	1239.3	1157.3	1249.1	1070.8	911.6	804.9	778.7	804.9	911.6
135°	1366.0	1369.1	1290.3	1214.5	1335.7	1154.2	990.4	885.4	859.1	885.4	990.4
137.5°	1410.8	1401.5	1330.5	1284.1	1416.0	1234.6	1067.8	970.3	928.6	970.3	1067.8
140°	1443.3	1441.7	1383.0	1345.9	1502.6	1313.5	1146.6	1047.6	1009.0	1047.6	1146.6
142.5°	1477.2	1486.5	1435.6	1413.9	1589.2	1396.9	1231.5	1123.3	1086.3	1123.3	1231.5
145°	1500.5	1520.5	1488.1	1498.9	1672.0	1489.6	1305.7	1196.0	1155.8	1196.0	1305.7
147.5°	1539.1	1565.4	1526.8	1559.2	1742.2	1571.5	1379.9	1271.7	1236.2	1271.7	1379.9
150°	1591.7	1604.0	1580.8	1642.6	1815.7	1662.7	1455.6	1344.4	1308.8	1344.4	1455.6
152.5°	1633.3	1648.8	1622.6	1733.8	1872.9	1746.2	1539.1	1415.4	1373.8	1415.4	1539.1
155°	1676.6	1682.8	1664.2	1821.9	1933.2	1828.1	1605.6	1494.2	1454.1	1494.2	1605.6
157.5°	1716.8	1729.2	1707.5	1888.4	1985.7	1899.2	1681.3	1573.1	1537.5	1573.1	1681.3
160°	1760.1	1760.1	1772.5	1965.6	2029.0	1961.0	1761.6	1659.6	1610.2	1659.6	1761.6
162.5°	1764.7	1794.1	1860.5	2019.8	2070.7	2015.1	1848.1	1721.4	1678.1	1721.4	1848.1
165°	1832.7	1859.0	1959.5	2067.7	2103.2	2063.0	1954.8	1823.5	1772.5	1823.5	1954.8
167.5°	1903.8	1959.5	2039.8	2121.7	2134.1	2107.8	2036.7	1945.6	1899.2	1945.6	2036.7
170°	2018.8	2067.7	2107.8	2141.9	2158.8	2143.4	2087.7	2042.9	2012.6	2042.9	2087.7
172.5°	2110.0	2141.9	2157.3	2178.9	2169.0	2161.9	2134.1	2112.5	2096.1	2112.5	2134.1
175°	2167.1	2174.3	2188.2	2180.4	2190.7	2172.8	2174.3	2185.0	2120.7	2185.0	2174.3
177.5°	2187.3	2199.0	2191.3	2177.4	2178.9	2175.8	2182.0	2188.2	2177.9	2188.2	2182.0
180°	2188.2	2188.2	2188.2	2188.2	2188.2	2188.2	2188.2	2188.2	2188.2	2188.2	2188.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3
2.5°	1867.8	1868.4	1869.3	1858.2	1861.9	1854.9
5°	1857.3	1858.2	1857.3	1849.6	1852.3	1845.3
7.5°	1842.3	1843.8	1843.8	1832.7	1837.5	1835.4
10°	1821.5	1823.1	1823.1	1812.5	1817.3	1812.9
12.5°	1795.6	1791.2	1795.6	1787.0	1790.4	1790.1
15°	1763.4	1762.4	1764.9	1755.3	1756.8	1759.0
17.5°	1726.9	1727.9	1726.9	1717.9	1721.3	1723.4
20°	1683.0	1684.0	1684.7	1677.6	1676.8	1678.3
22.5°	1638.9	1638.9	1640.5	1629.6	1628.8	1623.0
25°	1589.9	1590.9	1591.6	1583.1	1573.1	1566.4
27.5°	1539.7	1538.1	1541.3	1521.7	1511.7	1504.0
30°	1480.2	1482.4	1483.3	1462.7	1440.7	1429.1
32.5°	1416.9	1423.6	1419.9	1392.7	1365.8	1354.3
35°	1350.0	1355.7	1354.7	1315.3	1288.4	1280.8
37.5°	1278.0	1290.2	1282.7	1235.6	1209.7	1207.8
40°	1198.3	1221.0	1201.5	1154.1	1132.0	1136.8
42.5°	1118.6	1142.3	1121.8	1064.2	1057.1	1067.7
45°	1030.3	1062.7	1033.5	981.7	981.7	994.1
47.5°	945.9	971.5	947.5	904.9	911.6	926.9
50°	849.3	870.0	852.5	827.1	846.3	858.8
52.5°	761.9	752.9	765.1	756.5	783.0	800.2
55°	675.0	642.9	678.1	688.3	721.0	730.6
57.5°	580.9	550.8	584.0	620.2	661.4	667.2
60°	497.4	467.3	498.9	553.3	597.4	600.3
62.5°	416.8	404.3	418.3	483.2	532.2	536.0
65°	347.7	345.7	349.2	414.5	465.3	475.9
67.5°	291.0	295.8	291.0	347.3	395.3	411.6
70°	242.1	249.8	242.1	288.2	326.5	347.7
72.5°	196.4	208.9	197.9	232.5	267.0	291.0
75°	157.0	172.4	157.0	182.0	218.1	245.9
77.5°	121.5	138.8	121.5	139.8	183.0	223.7
80°	90.8	104.2	90.8	115.6	174.9	216.5
82.5°	64.9	73.5	64.9	114.0	182.0	223.7
85°	52.0	45.7	55.1	133.6	211.1	246.7
87.5°	46.2	15.4	67.8	164.0	251.0	280.3
90°	29.9	2.5	88.7	209.1	297.3	321.4
92.5°	19.4	25.7	126.0	256.7	350.6	372.0
95°	11.9	62.8	166.4	312.5	410.6	418.9
97.5°	19.5	110.7	217.3	369.1	468.6	475.4
100°	51.9	169.4	283.7	429.0	523.5	526.1
102.5°	96.8	232.8	347.2	486.7	584.1	605.5
105°	157.0	305.4	413.6	561.4	646.6	671.0
107.5°	227.6	382.7	482.5	629.4	715.4	731.8
110°	301.8	464.0	550.6	695.8	789.5	808.1



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CATALOG NUMBER: MWL-4-55-45-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	382.1	547.5	621.6	757.6	868.4	882.2
115°	473.3	624.8	688.1	828.8	931.7	939.4
117.5°	555.2	717.5	756.1	881.3	998.2	999.7
120°	641.8	805.5	824.1	954.9	1063.1	1075.4
122.5°	729.9	889.0	889.0	1016.7	1120.3	1127.9
125°	811.8	978.7	953.9	1063.1	1172.8	1175.9
127.5°	896.1	1069.9	1026.0	1123.3	1223.8	1219.1
130°	987.3	1156.4	1090.9	1180.5	1271.7	1256.3
132.5°	1070.8	1249.1	1157.3	1239.3	1319.6	1328.9
135°	1154.2	1335.7	1214.5	1290.3	1369.1	1366.0
137.5°	1234.6	1416.0	1284.1	1330.5	1401.5	1410.8
140°	1313.5	1502.6	1345.9	1383.0	1441.7	1443.3
142.5°	1396.9	1589.2	1413.9	1435.6	1486.5	1477.2
145°	1489.6	1672.0	1498.9	1488.1	1520.5	1500.5
147.5°	1571.5	1742.2	1559.2	1526.8	1565.4	1539.1
150°	1662.7	1815.7	1642.6	1580.8	1604.0	1591.7
152.5°	1746.2	1872.9	1733.8	1622.6	1648.8	1633.3
155°	1828.1	1933.2	1821.9	1664.2	1682.8	1676.6
157.5°	1899.2	1985.7	1888.4	1707.5	1729.2	1716.8
160°	1961.0	2029.0	1965.6	1772.5	1760.1	1760.1
162.5°	2015.1	2070.7	2019.8	1860.5	1794.1	1764.7
165°	2063.0	2103.2	2067.7	1959.5	1859.0	1832.7
167.5°	2107.8	2134.1	2121.7	2039.8	1959.5	1903.8
170°	2143.4	2158.8	2141.9	2107.8	2067.7	2018.8
172.5°	2161.9	2169.0	2178.9	2157.3	2141.9	2110.0
175°	2172.8	2190.7	2180.4	2188.2	2174.3	2167.1
177.5°	2175.8	2178.9	2177.4	2191.3	2199.0	2187.3
180°	2188.2	2188.2	2188.2	2188.2	2188.2	2188.2

(END OF REPORT)