

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: P392695

Luminaire Tested: **MWL-4-55-60-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392695
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-4-55-60-UNV-L835-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11282.0 lumens
Efficiency: N/A
Efficacy: 87.3 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

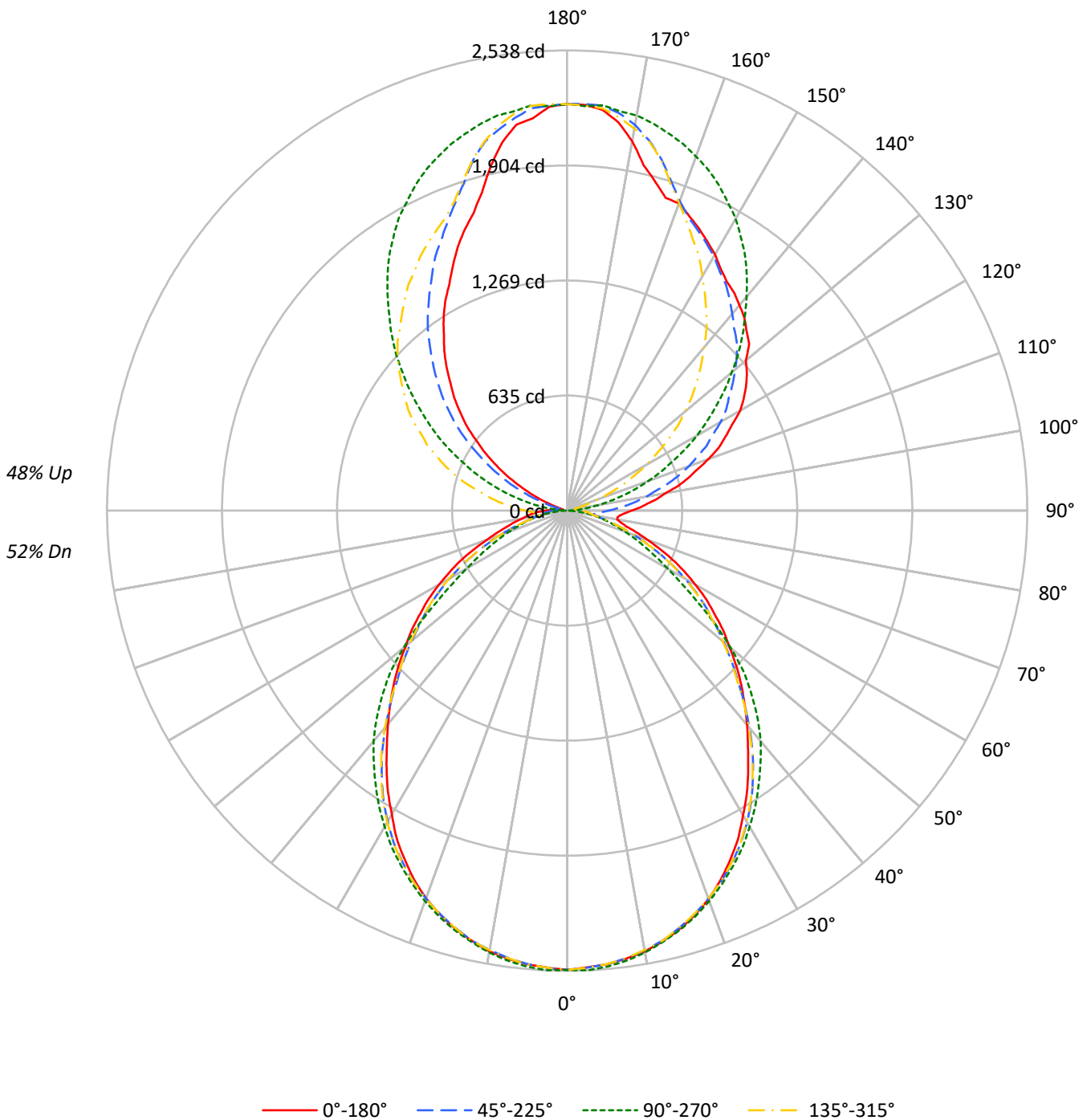
Input Watts (W): 129.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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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	0
RCR																		
0	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58	52
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	44
2	90	83	77	71	83	77	71	67	66	62	58	55	53	50	46	44	42	38
3	82	73	66	60	76	68	61	56	58	53	49	49	46	43	41	38	36	32
4	75	65	57	51	70	60	53	48	52	47	42	44	40	37	37	34	32	28
5	69	58	50	44	64	54	47	42	47	41	37	40	36	32	33	30	28	25
6	64	52	44	38	59	49	41	36	42	36	32	36	32	28	30	27	25	22
7	59	47	39	34	55	44	37	32	38	33	29	33	29	25	28	25	22	19
8	55	43	35	30	51	40	33	28	35	29	25	30	26	23	26	22	20	17
9	51	39	32	27	48	37	30	25	32	27	23	28	23	20	24	20	18	16
10	48	36	29	24	44	34	27	23	30	24	21	26	21	18	22	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	16360	16360	16360	16360
5°	16136	15051	16136	15051
10°	15897	13799	15897	13799
15°	15558	12636	15527	12636
20°	15102	11551	15071	11551
25°	14454	10515	14422	10515
30°	13647	9519	13602	9519
35°	12793	8543	12757	8543
40°	11966	7615	11917	7615
45°	11225	6580	11185	6580
50°	10424	5395	10381	5395
55°	9711	4064	9680	4064
60°	8931	3020	8914	3020
65°	8027	2289	8027	2289
70°	6900	1695	6924	1695
75°	6061	1231	6147	1231
80°	6537	798	5833	798
85°	9942	361	6464	361



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.8	2.1
10°-20°	673.3	6.0
20°-30°	987.4	8.8
30°-40°	1118.1	9.9
40°-50°	1053.5	9.3
50°-60°	842.6	7.5
60°-70°	553.6	4.9
70°-80°	284.0	2.5
80°-90°	160.0	1.4
90°-100°	195.1	1.7
100°-110°	349.8	3.1
110°-120°	596.0	5.3
120°-130°	809.6	7.2
130°-140°	923.3	8.2
140°-150°	920.9	8.2
150°-160°	801.8	7.1
160°-170°	564.0	5.0
170°-180°	210.1	1.9
0°-30°	1899.5	16.8
0°-40°	3017.7	26.7
0°-60°	4913.8	43.6
0°-90°	5911.4	52.4
90°-120°	1140.9	10.1
90°-150°	3794.7	33.6
90°-180°	5371.0	47.6
0°-180°	11282.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2533	2533	2533	2533	2533	
5°	2512	2525	2512	2525	2512	238
15°	2392	2396	2387	2396	2392	673
25°	2127	2164	2122	2164	2127	978
35°	1741	1842	1736	1842	1741	1089
45°	1357	1441	1352	1441	1357	1046
55°	991	876	988	876	991	889
65°	643	471	643	471	643	635
75°	337	234	342	234	337	374
85°	294	60	191	60	294	238
90°	356	3	118	3	356	196
95°	447	64	72	64	447	387
105°	690	314	24	314	690	728
115°	963	640	222	640	963	956
125°	1205	1003	548	1003	1205	1076
135°	1400	1369	881	1369	1400	1080
145°	1538	1712	1185	1712	1538	970
155°	1718	1980	1490	1980	1718	792
165°	1878	2154	1816	2154	1878	533
175°	2219	2244	2172	2244	2219	207
180°	2242	2242	2242	2242	2242	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2533.1	2533.1	2533.1	2533.1	2533.1	2533.1	2533.1	2533.1	2533.1	2533.1	2533.1
2.5°	2521.4	2529.5	2522.9	2537.2	2538.2	2535.6	2522.9	2529.5	2523.1	2529.5	2522.9
5°	2511.6	2518.7	2512.1	2523.8	2524.8	2523.8	2510.5	2518.7	2511.6	2518.7	2510.5
7.5°	2492.6	2499.7	2489.8	2505.2	2504.2	2503.6	2488.3	2498.1	2492.6	2498.1	2488.3
10°	2468.6	2468.2	2462.3	2475.1	2475.1	2473.5	2460.7	2465.1	2468.6	2465.1	2460.7
12.5°	2433.4	2433.8	2429.3	2439.1	2436.6	2439.1	2429.3	2430.7	2430.3	2430.7	2429.3
15°	2391.8	2387.6	2384.1	2397.8	2396.3	2396.3	2382.5	2384.5	2387.0	2384.5	2382.5
17.5°	2339.7	2338.5	2334.0	2346.1	2347.1	2346.1	2332.4	2336.9	2334.9	2336.9	2332.4
20°	2280.7	2280.1	2278.9	2292.1	2292.4	2290.4	2277.3	2277.0	2276.0	2277.0	2277.3
22.5°	2207.4	2215.2	2216.0	2232.1	2229.5	2230.5	2214.4	2212.1	2204.2	2212.1	2214.4
25°	2126.8	2133.7	2146.8	2165.3	2163.6	2163.6	2143.7	2128.9	2122.1	2128.9	2143.7
27.5°	2042.3	2052.1	2072.1	2096.1	2093.9	2094.5	2069.0	2047.4	2037.5	2047.4	2069.0
30°	1940.0	1952.8	1984.3	2016.1	2013.3	2013.0	1979.5	1948.1	1933.6	1948.1	1979.5
32.5°	1845.7	1855.5	1891.9	1933.6	1931.4	1930.4	1887.2	1849.1	1839.3	1849.1	1887.2
35°	1740.9	1750.7	1788.1	1841.2	1842.2	1836.3	1783.3	1745.9	1736.1	1745.9	1783.3
37.5°	1637.7	1643.6	1681.0	1743.9	1751.5	1739.0	1676.1	1638.8	1632.9	1638.8	1676.1
40°	1543.4	1537.5	1563.0	1635.2	1661.1	1631.9	1556.6	1531.1	1537.0	1531.1	1556.6
42.5°	1449.0	1437.2	1448.4	1522.1	1555.0	1518.9	1443.6	1430.8	1442.6	1430.8	1443.6
45°	1357.0	1331.5	1332.4	1402.2	1440.9	1399.0	1326.1	1326.6	1352.2	1326.6	1326.1
47.5°	1264.6	1240.1	1230.2	1281.7	1325.0	1280.1	1223.8	1235.2	1259.8	1235.2	1223.8
50°	1166.3	1150.6	1125.1	1159.9	1176.9	1156.6	1118.7	1144.2	1161.5	1144.2	1118.7
52.5°	1084.8	1065.1	1027.2	1040.9	1031.4	1037.7	1022.4	1058.7	1079.9	1058.7	1022.4
55°	990.8	980.0	937.7	916.4	876.5	913.3	932.9	975.2	987.6	975.2	932.9
57.5°	908.2	899.4	845.3	798.5	746.8	795.3	840.5	894.6	905.0	894.6	840.5
60°	816.2	816.2	751.3	677.0	638.7	675.4	748.1	813.0	814.6	813.0	748.1
62.5°	728.7	725.7	656.9	568.9	551.6	567.3	653.8	722.6	727.1	722.6	653.8
65°	642.6	628.8	562.0	476.5	471.0	474.9	560.4	627.3	642.6	627.3	560.4
67.5°	554.1	537.4	471.6	395.3	404.1	395.3	470.0	535.8	554.1	535.8	470.0
70°	470.0	446.4	392.4	326.5	336.3	326.5	392.4	448.0	471.6	448.0	392.4
72.5°	401.2	362.9	315.7	267.5	281.7	266.0	315.7	364.4	404.3	364.4	315.7
75°	337.3	294.1	244.3	213.9	233.5	213.9	245.9	295.6	342.1	295.6	245.9
77.5°	302.8	247.4	191.3	165.7	187.3	165.7	192.8	242.6	296.5	242.6	192.8
80°	279.6	226.3	156.7	123.4	143.1	123.4	153.5	200.9	249.5	200.9	153.5
82.5°	280.2	228.6	147.2	89.0	98.9	89.0	128.2	171.7	220.1	171.7	128.2
85°	293.9	249.5	162.4	73.1	60.5	70.0	116.5	153.0	191.1	153.0	116.5
87.5°	319.4	286.5	188.6	83.1	19.7	61.0	98.4	134.6	156.5	134.6	98.4
90°	355.6	328.0	230.8	100.6	2.6	40.5	74.1	104.9	118.2	104.9	74.1
92.5°	402.6	378.7	276.6	133.0	26.3	23.8	59.8	85.9	92.5	85.9	59.8
95°	446.6	437.2	329.8	171.4	64.3	13.2	45.0	70.0	71.6	70.0	45.0
97.5°	500.6	492.6	384.8	223.5	113.3	20.9	35.1	57.4	57.4	57.4	35.1
100°	548.5	544.9	442.2	291.5	174.5	54.2	22.9	48.1	50.0	48.1	22.9
102.5°	624.9	603.0	499.3	356.5	239.3	100.1	27.7	33.3	36.3	33.3	27.7
105°	690.1	664.0	575.8	424.5	313.7	161.8	64.7	27.8	23.9	27.8	64.7
107.5°	751.3	733.5	645.4	494.1	392.8	233.0	118.4	62.5	42.3	62.5	118.4
110°	828.4	809.4	713.4	563.8	475.1	309.0	180.2	113.1	87.8	113.1	180.2



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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°	904.3	890.2	776.7	636.5	560.6	391.3	256.1	176.4	152.6	176.4	256.1
115°	962.9	954.0	849.6	704.6	639.7	484.6	340.0	249.8	222.3	249.8	340.0
117.5°	1024.6	1022.1	903.3	775.2	735.7	569.5	417.5	324.1	295.1	324.1	417.5
120°	1102.2	1089.5	977.7	844.9	825.8	658.1	503.0	410.6	380.6	410.6	503.0
122.5°	1155.9	1148.1	1041.0	911.3	911.3	748.3	585.3	492.9	461.2	492.9	585.3
125°	1205.1	1201.8	1089.5	977.7	1003.1	832.2	678.1	583.1	548.3	583.1	678.1
127.5°	1249.3	1254.1	1151.2	1050.6	1096.5	917.6	768.3	663.8	627.4	663.8	768.3
130°	1287.3	1303.2	1209.8	1117.0	1185.0	1011.0	849.0	744.5	720.8	744.5	849.0
132.5°	1361.7	1352.2	1269.9	1186.0	1280.0	1097.4	934.4	825.2	798.4	825.2	934.4
135°	1399.7	1402.8	1322.1	1244.6	1368.6	1182.9	1015.1	907.6	880.6	907.6	1015.1
137.5°	1445.6	1436.0	1363.3	1315.8	1450.9	1265.1	1094.3	994.5	951.8	994.5	1094.3
140°	1478.8	1477.2	1417.1	1379.1	1539.5	1345.9	1175.0	1073.7	1034.1	1073.7	1175.0
142.5°	1513.6	1524.1	1470.9	1448.7	1628.2	1431.3	1262.0	1152.2	1113.3	1152.2	1262.0
145°	1538.3	1558.9	1524.7	1535.8	1712.0	1526.3	1337.9	1226.6	1185.4	1226.6	1337.9
147.5°	1577.9	1604.8	1564.3	1597.5	1784.8	1610.1	1413.9	1304.1	1267.8	1304.1	1413.9
150°	1630.7	1643.4	1619.6	1682.9	1859.1	1703.5	1491.5	1377.6	1341.1	1377.6	1491.5
152.5°	1673.4	1689.2	1662.4	1776.3	1917.7	1789.0	1576.9	1450.3	1407.6	1450.3	1576.9
155°	1717.7	1724.1	1705.0	1866.5	1980.4	1872.8	1645.0	1531.0	1489.9	1531.0	1645.0
157.5°	1758.9	1771.6	1749.4	1934.5	2034.2	1945.6	1722.5	1611.8	1575.3	1611.8	1722.5
160°	1803.2	1803.2	1815.9	2013.7	2078.5	2008.9	1804.8	1700.3	1649.7	1700.3	1804.8
162.5°	1807.9	1838.0	1906.0	2069.1	2121.3	2064.3	1893.4	1763.6	1719.3	1763.6	1893.4
165°	1877.5	1904.5	2007.4	2118.1	2154.5	2113.4	2002.5	1868.1	1815.9	1868.1	2002.5
167.5°	1950.4	2007.4	2089.6	2174.4	2187.1	2160.2	2086.5	1993.1	1945.6	1993.1	2086.5
170°	2068.1	2118.1	2159.2	2194.1	2212.5	2195.7	2138.7	2092.8	2061.7	2092.8	2138.7
172.5°	2160.5	2194.1	2209.9	2233.0	2221.9	2215.6	2186.1	2164.0	2146.2	2164.0	2186.1
175°	2219.0	2227.3	2241.6	2234.6	2244.1	2226.7	2227.3	2238.3	2171.5	2238.3	2227.3
177.5°	2239.6	2252.6	2244.7	2231.5	2233.0	2229.9	2235.2	2241.6	2230.1	2241.6	2235.2
180°	2241.6	2241.6	2241.6	2241.6	2241.6	2241.6	2241.6	2241.6	2241.6	2241.6	2241.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2533.1	2533.1	2533.1	2533.1	2533.1	2533.1
2.5°	2535.6	2538.2	2537.2	2522.9	2529.5	2521.4
5°	2523.8	2524.8	2523.8	2512.1	2518.7	2511.6
7.5°	2503.6	2504.2	2505.2	2489.8	2499.7	2492.6
10°	2473.5	2475.1	2475.1	2462.3	2468.2	2468.6
12.5°	2439.1	2436.6	2439.1	2429.3	2433.8	2433.4
15°	2396.3	2396.3	2397.8	2384.1	2387.6	2391.8
17.5°	2346.1	2347.1	2346.1	2334.0	2338.5	2339.7
20°	2290.4	2292.4	2292.1	2278.9	2280.1	2280.7
22.5°	2230.5	2229.5	2232.1	2216.0	2215.2	2207.4
25°	2163.6	2163.6	2165.3	2146.8	2133.7	2126.8
27.5°	2094.5	2093.9	2096.1	2072.1	2052.1	2042.3
30°	2013.0	2013.3	2016.1	1984.3	1952.8	1940.0
32.5°	1930.4	1931.4	1933.6	1891.9	1855.5	1845.7
35°	1836.3	1842.2	1841.2	1788.1	1750.7	1740.9
37.5°	1739.0	1751.5	1743.9	1681.0	1643.6	1637.7
40°	1631.9	1661.1	1635.2	1563.0	1537.5	1543.4
42.5°	1518.9	1555.0	1522.1	1448.4	1437.2	1449.0
45°	1399.0	1440.9	1402.2	1332.4	1331.5	1357.0
47.5°	1280.1	1325.0	1281.7	1230.2	1240.1	1264.6
50°	1156.6	1176.9	1159.9	1125.1	1150.6	1166.3
52.5°	1037.7	1031.4	1040.9	1027.2	1065.1	1084.8
55°	913.3	876.5	916.4	937.7	980.0	990.8
57.5°	795.3	746.8	798.5	845.3	899.4	908.2
60°	675.4	638.7	677.0	751.3	816.2	816.2
62.5°	567.3	551.6	568.9	656.9	725.7	728.7
65°	474.9	471.0	476.5	562.0	628.8	642.6
67.5°	395.3	404.1	395.3	471.6	537.4	554.1
70°	326.5	336.3	326.5	392.4	446.4	470.0
72.5°	266.0	281.7	267.5	315.7	362.9	401.2
75°	213.9	233.5	213.9	244.3	294.1	337.3
77.5°	165.7	187.3	165.7	191.3	247.4	302.8
80°	123.4	143.1	123.4	156.7	226.3	279.6
82.5°	89.0	98.9	89.0	147.2	228.6	280.2
85°	70.0	60.5	73.1	162.4	249.5	293.9
87.5°	61.0	19.7	83.1	188.6	286.5	319.4
90°	40.5	2.6	100.6	230.8	328.0	355.6
92.5°	23.8	26.3	133.0	276.6	378.7	402.6
95°	13.2	64.3	171.4	329.8	437.2	446.6
97.5°	20.9	113.3	223.5	384.8	492.6	500.6
100°	54.2	174.5	291.5	442.2	544.9	548.5
102.5°	100.1	239.3	356.5	499.3	603.0	624.9
105°	161.8	313.7	424.5	575.8	664.0	690.1
107.5°	233.0	392.8	494.1	645.4	733.5	751.3
110°	309.0	475.1	563.8	713.4	809.4	828.4



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CATALOG NUMBER: MWL-4-55-60-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	391.3	560.6	636.5	776.7	890.2	904.3
115°	484.6	639.7	704.6	849.6	954.0	962.9
117.5°	569.5	735.7	775.2	903.3	1022.1	1024.6
120°	658.1	825.8	844.9	977.7	1089.5	1102.2
122.5°	748.3	911.3	911.3	1041.0	1148.1	1155.9
125°	832.2	1003.1	977.7	1089.5	1201.8	1205.1
127.5°	917.6	1096.5	1050.6	1151.2	1254.1	1249.3
130°	1011.0	1185.0	1117.0	1209.8	1303.2	1287.3
132.5°	1097.4	1280.0	1186.0	1269.9	1352.2	1361.7
135°	1182.9	1368.6	1244.6	1322.1	1402.8	1399.7
137.5°	1265.1	1450.9	1315.8	1363.3	1436.0	1445.6
140°	1345.9	1539.5	1379.1	1417.1	1477.2	1478.8
142.5°	1431.3	1628.2	1448.7	1470.9	1524.1	1513.6
145°	1526.3	1712.0	1535.8	1524.7	1558.9	1538.3
147.5°	1610.1	1784.8	1597.5	1564.3	1604.8	1577.9
150°	1703.5	1859.1	1682.9	1619.6	1643.4	1630.7
152.5°	1789.0	1917.7	1776.3	1662.4	1689.2	1673.4
155°	1872.8	1980.4	1866.5	1705.0	1724.1	1717.7
157.5°	1945.6	2034.2	1934.5	1749.4	1771.6	1758.9
160°	2008.9	2078.5	2013.7	1815.9	1803.2	1803.2
162.5°	2064.3	2121.3	2069.1	1906.0	1838.0	1807.9
165°	2113.4	2154.5	2118.1	2007.4	1904.5	1877.5
167.5°	2160.2	2187.1	2174.4	2089.6	2007.4	1950.4
170°	2195.7	2212.5	2194.1	2159.2	2118.1	2068.1
172.5°	2215.6	2221.9	2233.0	2209.9	2194.1	2160.5
175°	2226.7	2244.1	2234.6	2241.6	2227.3	2219.0
177.5°	2229.9	2233.0	2231.5	2244.7	2252.6	2239.6
180°	2241.6	2241.6	2241.6	2241.6	2241.6	2241.6

(END OF REPORT)