

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: P392666

Luminaire Tested: **MWL-4-34-60-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392666
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-4-34-60-UNV-L940-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

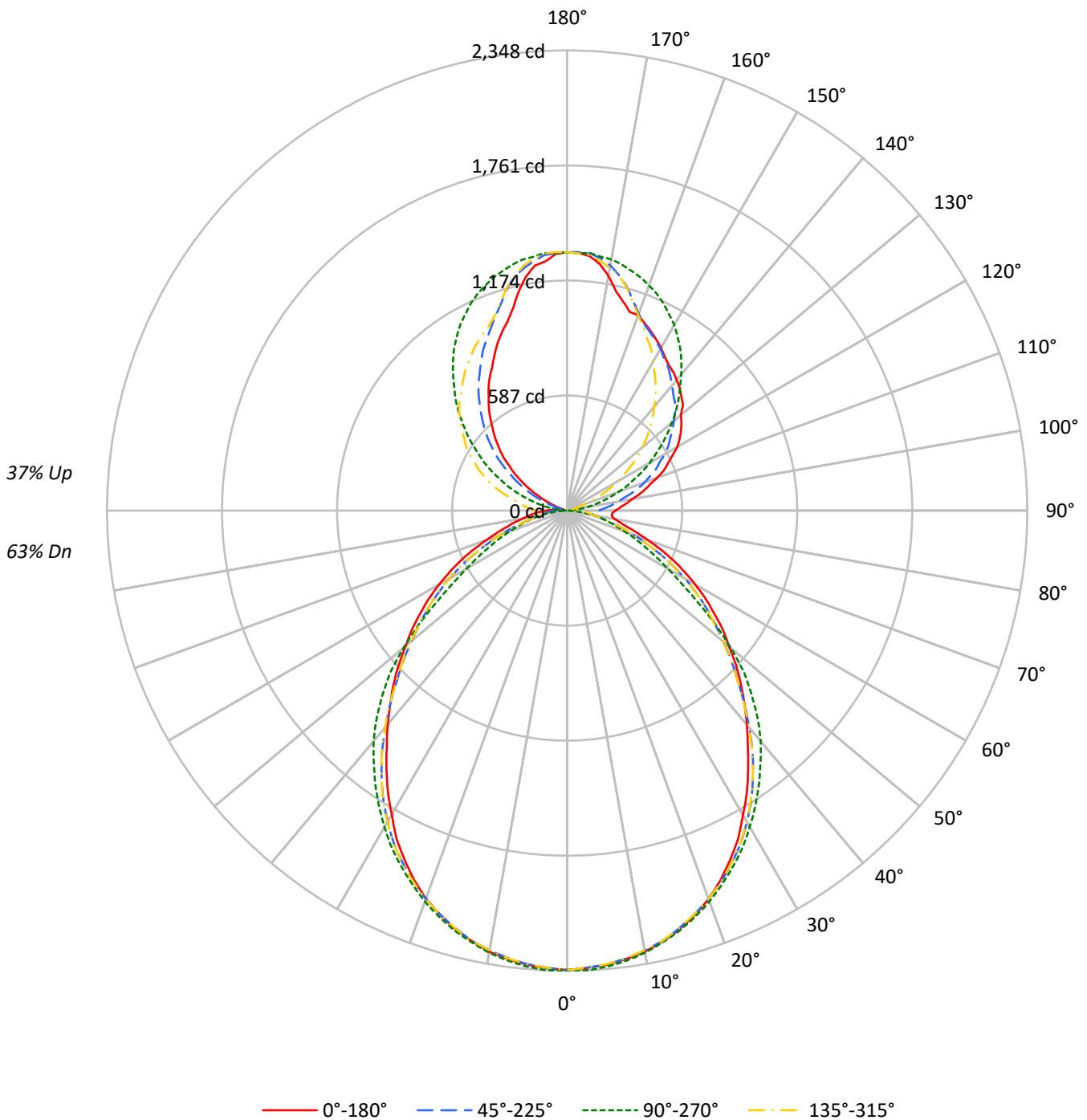
Lumens per Lamp: N/A
Luminaire Lumens: 8629.9 lumens
Efficiency: N/A
Efficacy: 86.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 99.485
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	63
1	101	97	93	89	95	91	87	84	80	77	75	70	68	66	61	59	58	54
2	92	85	79	74	86	80	74	70	71	66	63	62	59	56	54	52	50	46
3	84	75	68	62	79	71	64	59	63	58	53	55	51	48	48	45	43	39
4	78	67	59	53	73	63	56	50	56	50	46	49	45	41	43	40	37	34
5	71	60	52	46	67	56	49	44	50	44	40	45	40	36	39	36	33	30
6	66	54	46	40	62	51	44	38	46	40	35	40	36	32	36	32	29	26
7	61	49	41	35	57	46	39	34	41	35	31	37	32	28	33	29	26	23
8	57	44	37	31	53	42	35	30	38	32	28	34	29	26	30	26	23	21
9	53	41	33	28	50	39	32	27	35	29	25	31	27	23	28	24	21	19
10	50	37	30	25	47	36	29	24	32	27	23	29	24	21	26	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	15141	15141	15141	15141
5°	14944	13927	14944	13927
10°	14715	12770	14715	12770
15°	14390	11699	14372	11699
20°	13968	10697	13949	10697
25°	13369	9737	13350	9737
30°	12620	8814	12594	8814
35°	11831	7910	11811	7910
40°	11063	7046	11034	7046
45°	10379	6087	10356	6087
50°	9634	4992	9610	4992
55°	8975	3761	8958	3761
60°	8256	2792	8246	2792
65°	7421	2116	7421	2116
70°	6380	1566	6395	1566
75°	5599	1138	5649	1138
80°	5719	736	5307	736
85°	7723	331	5679	331



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.0	2.6
10°-20°	623.3	7.2
20°-30°	913.9	10.6
30°-40°	1034.7	12.0
40°-50°	974.7	11.3
50°-60°	779.4	9.0
60°-70°	511.9	5.9
70°-80°	261.7	3.0
80°-90°	133.7	1.5
90°-100°	128.8	1.5
100°-110°	208.0	2.4
110°-120°	351.0	4.1
120°-130°	476.5	5.5
130°-140°	543.2	6.3
140°-150°	541.7	6.3
150°-160°	471.5	5.5
160°-170°	331.6	3.8
170°-180°	123.5	1.4
0°-30°	1758.2	20.4
0°-40°	2792.8	32.4
0°-60°	4546.9	52.7
0°-90°	5454.2	63.2
90°-120°	687.8	8.0
90°-150°	2249.1	26.1
90°-180°	3176.0	36.8
0°-180°	8629.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2344	2344	2344	2344	2344	
5°	2326	2336	2326	2336	2326	221
15°	2212	2219	2210	2219	2212	623
25°	1967	2004	1964	2004	1967	904
35°	1610	1706	1607	1706	1610	1007
45°	1255	1333	1252	1333	1255	967
55°	916	811	914	811	916	821
65°	594	436	594	436	594	587
75°	312	216	314	216	312	342
85°	228	56	168	56	228	190
90°	245	2	106	2	245	135
95°	285	38	65	38	285	244
105°	410	185	18	185	410	433
115°	567	376	132	376	567	562
125°	709	590	323	590	709	633
135°	823	805	518	805	823	635
145°	905	1006	698	1006	905	570
155°	1010	1164	876	1164	1010	466
165°	1104	1267	1068	1267	1104	313
175°	1304	1320	1276	1320	1304	122
180°	1318	1318	1318	1318	1318	



TEST NUMBER: P392666

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2344.4	2344.4	2344.4	2344.4	2344.4	2344.4	2344.4	2344.4	2344.4	2344.4	2344.4
2.5°	2335.2	2341.6	2334.4	2347.2	2348.1	2346.3	2334.4	2341.6	2336.2	2341.6	2334.4
5°	2326.1	2331.6	2324.4	2335.3	2336.2	2335.3	2323.4	2331.6	2326.1	2331.6	2323.4
7.5°	2307.9	2313.4	2304.3	2318.0	2317.1	2317.0	2303.4	2312.5	2307.9	2312.5	2303.4
10°	2285.1	2284.2	2278.8	2290.6	2290.6	2289.7	2277.8	2282.4	2285.1	2282.4	2277.8
12.5°	2251.5	2252.3	2248.7	2257.8	2256.0	2257.8	2248.7	2250.5	2249.6	2250.5	2248.7
15°	2212.3	2209.5	2206.8	2219.5	2218.6	2218.6	2205.9	2207.7	2209.5	2207.7	2205.9
17.5°	2164.0	2164.0	2160.3	2172.2	2173.1	2172.2	2159.4	2163.0	2161.2	2163.0	2159.4
20°	2109.4	2109.4	2109.3	2122.0	2123.0	2121.1	2108.4	2107.5	2106.6	2107.5	2108.4
22.5°	2042.0	2049.2	2051.0	2066.5	2064.6	2065.6	2050.1	2047.3	2040.0	2047.3	2050.1
25°	1967.2	1973.6	1986.3	2004.5	2003.6	2003.6	1984.5	1970.8	1964.4	1970.8	1984.5
27.5°	1888.9	1898.0	1917.0	1939.8	1938.9	1938.9	1915.2	1895.2	1886.1	1895.2	1915.2
30°	1794.1	1806.0	1835.1	1865.1	1864.2	1863.3	1832.3	1803.2	1790.4	1803.2	1832.3
32.5°	1706.7	1715.8	1749.5	1788.6	1787.7	1786.8	1746.7	1712.0	1702.9	1712.0	1746.7
35°	1610.0	1619.1	1653.7	1702.9	1705.7	1700.2	1651.0	1616.4	1607.3	1616.4	1651.0
37.5°	1514.3	1519.8	1554.4	1612.7	1620.9	1610.0	1551.7	1517.1	1511.6	1517.1	1551.7
40°	1426.9	1421.4	1445.1	1512.5	1537.1	1510.7	1441.5	1417.8	1423.2	1417.8	1441.5
42.5°	1339.4	1328.5	1339.4	1407.7	1438.7	1405.9	1336.7	1324.8	1335.8	1324.8	1336.7
45°	1254.7	1231.0	1231.9	1296.6	1333.0	1294.8	1228.2	1228.3	1251.9	1228.3	1228.2
47.5°	1169.0	1146.3	1137.1	1185.4	1225.5	1184.5	1133.4	1143.5	1166.3	1143.5	1133.4
50°	1077.9	1063.3	1039.7	1072.5	1088.9	1070.6	1035.9	1059.6	1075.2	1059.6	1035.9
52.5°	1002.3	984.1	949.5	962.2	954.0	960.4	946.6	980.3	999.6	980.3	946.6
55°	915.7	905.7	866.5	847.4	811.0	845.5	863.7	902.9	913.9	902.9	863.7
57.5°	839.2	831.0	780.9	738.1	690.7	736.2	778.1	828.2	837.4	828.2	778.1
60°	754.5	754.5	694.3	626.0	590.5	625.0	692.4	752.6	753.6	752.6	692.4
62.5°	673.4	670.7	606.9	525.8	510.2	524.8	605.0	668.7	672.5	668.7	605.0
65°	594.1	581.4	519.4	440.2	435.5	439.2	518.4	580.4	594.1	580.4	518.4
67.5°	512.1	496.6	435.6	365.4	373.6	365.4	434.6	495.6	512.1	495.6	434.6
70°	434.6	412.7	362.6	301.6	310.7	301.6	362.6	413.7	435.6	413.7	362.6
72.5°	370.8	335.3	291.6	246.9	260.6	246.0	291.6	336.3	372.7	336.3	291.6
75°	311.6	271.5	226.0	197.7	215.9	197.7	226.9	272.5	314.4	272.5	226.9
77.5°	275.3	226.0	176.8	153.1	173.1	153.1	177.7	223.3	271.6	223.3	177.7
80°	244.6	199.0	143.1	113.9	132.1	113.9	141.2	184.1	227.0	184.1	141.2
82.5°	232.3	189.3	127.8	82.0	91.1	82.0	116.7	155.9	197.1	155.9	116.7
85°	228.3	192.6	130.1	65.7	55.6	63.8	103.1	135.9	167.9	135.9	103.1
87.5°	232.7	207.0	138.8	66.9	18.2	53.8	85.8	117.8	136.9	117.8	85.8
90°	245.2	225.0	158.6	71.8	1.8	36.4	66.6	93.9	105.8	93.9	66.6
92.5°	265.1	249.5	181.1	85.1	15.8	21.0	53.8	77.5	83.0	77.5	53.8
95°	285.0	279.4	207.5	103.0	38.1	10.1	40.2	63.8	64.8	63.8	40.2
97.5°	311.3	306.7	234.6	131.9	66.9	12.9	29.2	51.1	51.1	51.1	29.2
100°	334.8	332.0	263.7	171.9	103.1	32.5	17.4	40.3	42.1	40.3	17.4
102.5°	375.0	361.2	294.6	210.0	141.2	59.4	17.6	26.6	29.3	26.6	17.6
105°	409.6	393.0	339.1	249.9	184.9	95.7	39.0	19.3	18.3	19.3	39.0
107.5°	443.2	432.0	380.0	290.8	231.3	137.5	70.6	38.0	26.9	38.0	70.6
110°	487.8	476.7	420.0	331.7	279.7	182.1	106.8	67.8	52.9	67.8	106.8



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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°	532.4	524.1	457.2	374.5	329.9	230.4	151.4	105.0	91.0	105.0	151.4
115°	566.8	561.2	499.9	414.5	376.4	285.3	200.7	147.7	131.9	147.7	200.7
117.5°	603.1	601.2	531.5	456.2	433.0	335.5	246.2	191.4	174.7	191.4	246.2
120°	648.6	641.1	575.2	497.1	486.0	387.5	296.4	242.4	224.9	242.4	296.4
122.5°	680.1	675.5	612.4	536.2	536.2	440.4	344.8	290.8	272.2	290.8	344.8
125°	709.0	707.1	641.1	575.2	590.0	489.7	399.5	343.8	323.3	343.8	399.5
127.5°	735.0	737.8	677.4	617.9	644.9	539.8	452.5	391.1	369.8	391.1	452.5
130°	757.3	766.6	711.8	657.0	696.9	594.7	499.9	438.6	424.7	438.6	499.9
132.5°	800.9	795.4	747.1	697.8	752.7	645.8	550.0	486.0	470.1	486.0	550.0
135°	823.3	825.2	777.7	732.3	804.7	696.0	597.5	534.3	518.5	534.3	597.5
137.5°	850.2	844.7	802.0	774.1	853.1	744.3	644.0	585.4	560.3	585.4	644.0
140°	869.7	868.8	833.5	811.2	905.1	791.7	691.3	631.8	608.6	631.8	691.3
142.5°	890.2	896.7	865.1	852.1	957.1	841.9	742.5	678.3	655.1	678.3	742.5
145°	905.1	917.1	896.7	903.2	1006.4	897.6	787.0	722.0	697.8	722.0	787.0
147.5°	928.3	944.1	919.9	939.4	1049.1	946.9	831.7	767.5	746.1	767.5	831.7
150°	958.9	966.4	952.5	989.6	1092.8	1001.8	877.2	810.2	788.9	810.2	877.2
152.5°	984.1	993.4	977.5	1044.5	1127.2	1051.9	927.4	853.1	827.9	853.1	927.4
155°	1010.0	1013.8	1002.7	1097.4	1164.4	1101.2	967.3	900.4	876.3	900.4	967.3
157.5°	1034.3	1041.7	1028.6	1137.4	1195.9	1143.9	1012.9	947.8	926.4	947.8	1012.9
160°	1060.2	1060.2	1067.7	1183.9	1222.0	1181.1	1061.2	999.8	970.1	999.8	1061.2
162.5°	1063.1	1080.7	1120.7	1216.4	1247.0	1213.6	1113.3	1037.0	1011.0	1037.0	1113.3
165°	1104.0	1119.7	1180.1	1245.2	1266.6	1242.4	1177.3	1098.3	1067.7	1098.3	1177.3
167.5°	1146.7	1180.1	1228.4	1278.6	1286.1	1270.3	1226.6	1171.8	1143.9	1171.8	1226.6
170°	1215.5	1245.2	1269.3	1289.8	1301.0	1290.8	1257.3	1230.3	1211.8	1230.3	1257.3
172.5°	1269.4	1289.8	1299.1	1313.0	1306.5	1302.8	1285.2	1272.2	1261.1	1272.2	1285.2
175°	1303.8	1309.3	1317.7	1314.0	1319.5	1309.3	1309.3	1315.8	1275.9	1315.8	1309.3
177.5°	1315.9	1324.2	1319.5	1312.1	1313.0	1311.2	1314.0	1317.7	1310.3	1317.7	1314.0
180°	1317.7	1317.7	1317.7	1317.7	1317.7	1317.7	1317.7	1317.7	1317.7	1317.7	1317.7



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CATALOG NUMBER: MWL-4-34-60-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2344.4	2344.4	2344.4	2344.4	2344.4	2344.4
2.5°	2346.3	2348.1	2347.2	2334.4	2341.6	2335.2
5°	2335.3	2336.2	2335.3	2324.4	2331.6	2326.1
7.5°	2317.0	2317.1	2318.0	2304.3	2313.4	2307.9
10°	2289.7	2290.6	2290.6	2278.8	2284.2	2285.1
12.5°	2257.8	2256.0	2257.8	2248.7	2252.3	2251.5
15°	2218.6	2218.6	2219.5	2206.8	2209.5	2212.3
17.5°	2172.2	2173.1	2172.2	2160.3	2164.0	2164.0
20°	2121.1	2123.0	2122.0	2109.3	2109.4	2109.4
22.5°	2065.6	2064.6	2066.5	2051.0	2049.2	2042.0
25°	2003.6	2003.6	2004.5	1986.3	1973.6	1967.2
27.5°	1938.9	1938.9	1939.8	1917.0	1898.0	1888.9
30°	1863.3	1864.2	1865.1	1835.1	1806.0	1794.1
32.5°	1786.8	1787.7	1788.6	1749.5	1715.8	1706.7
35°	1700.2	1705.7	1702.9	1653.7	1619.1	1610.0
37.5°	1610.0	1620.9	1612.7	1554.4	1519.8	1514.3
40°	1510.7	1537.1	1512.5	1445.1	1421.4	1426.9
42.5°	1405.9	1438.7	1407.7	1339.4	1328.5	1339.4
45°	1294.8	1333.0	1296.6	1231.9	1231.0	1254.7
47.5°	1184.5	1225.5	1185.4	1137.1	1146.3	1169.0
50°	1070.6	1088.9	1072.5	1039.7	1063.3	1077.9
52.5°	960.4	954.0	962.2	949.5	984.1	1002.3
55°	845.5	811.0	847.4	866.5	905.7	915.7
57.5°	736.2	690.7	738.1	780.9	831.0	839.2
60°	625.0	590.5	626.0	694.3	754.5	754.5
62.5°	524.8	510.2	525.8	606.9	670.7	673.4
65°	439.2	435.5	440.2	519.4	581.4	594.1
67.5°	365.4	373.6	365.4	435.6	496.6	512.1
70°	301.6	310.7	301.6	362.6	412.7	434.6
72.5°	246.0	260.6	246.9	291.6	335.3	370.8
75°	197.7	215.9	197.7	226.0	271.5	311.6
77.5°	153.1	173.1	153.1	176.8	226.0	275.3
80°	113.9	132.1	113.9	143.1	199.0	244.6
82.5°	82.0	91.1	82.0	127.8	189.3	232.3
85°	63.8	55.6	65.7	130.1	192.6	228.3
87.5°	53.8	18.2	66.9	138.8	207.0	232.7
90°	36.4	1.8	71.8	158.6	225.0	245.2
92.5°	21.0	15.8	85.1	181.1	249.5	265.1
95°	10.1	38.1	103.0	207.5	279.4	285.0
97.5°	12.9	66.9	131.9	234.6	306.7	311.3
100°	32.5	103.1	171.9	263.7	332.0	334.8
102.5°	59.4	141.2	210.0	294.6	361.2	375.0
105°	95.7	184.9	249.9	339.1	393.0	409.6
107.5°	137.5	231.3	290.8	380.0	432.0	443.2
110°	182.1	279.7	331.7	420.0	476.7	487.8



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CATALOG NUMBER: MWL-4-34-60-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	230.4	329.9	374.5	457.2	524.1	532.4
115°	285.3	376.4	414.5	499.9	561.2	566.8
117.5°	335.5	433.0	456.2	531.5	601.2	603.1
120°	387.5	486.0	497.1	575.2	641.1	648.6
122.5°	440.4	536.2	536.2	612.4	675.5	680.1
125°	489.7	590.0	575.2	641.1	707.1	709.0
127.5°	539.8	644.9	617.9	677.4	737.8	735.0
130°	594.7	696.9	657.0	711.8	766.6	757.3
132.5°	645.8	752.7	697.8	747.1	795.4	800.9
135°	696.0	804.7	732.3	777.7	825.2	823.3
137.5°	744.3	853.1	774.1	802.0	844.7	850.2
140°	791.7	905.1	811.2	833.5	868.8	869.7
142.5°	841.9	957.1	852.1	865.1	896.7	890.2
145°	897.6	1006.4	903.2	896.7	917.1	905.1
147.5°	946.9	1049.1	939.4	919.9	944.1	928.3
150°	1001.8	1092.8	989.6	952.5	966.4	958.9
152.5°	1051.9	1127.2	1044.5	977.5	993.4	984.1
155°	1101.2	1164.4	1097.4	1002.7	1013.8	1010.0
157.5°	1143.9	1195.9	1137.4	1028.6	1041.7	1034.3
160°	1181.1	1222.0	1183.9	1067.7	1060.2	1060.2
162.5°	1213.6	1247.0	1216.4	1120.7	1080.7	1063.1
165°	1242.4	1266.6	1245.2	1180.1	1119.7	1104.0
167.5°	1270.3	1286.1	1278.6	1228.4	1180.1	1146.7
170°	1290.8	1301.0	1289.8	1269.3	1245.2	1215.5
172.5°	1302.8	1306.5	1313.0	1299.1	1289.8	1269.4
175°	1309.3	1319.5	1314.0	1317.7	1309.3	1303.8
177.5°	1311.2	1313.0	1312.1	1319.5	1324.2	1315.9
180°	1317.7	1317.7	1317.7	1317.7	1317.7	1317.7

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