

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: P392704

Luminaire Tested: **MWL-4-66-33-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392704
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-4-66-33-UNV-L935-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

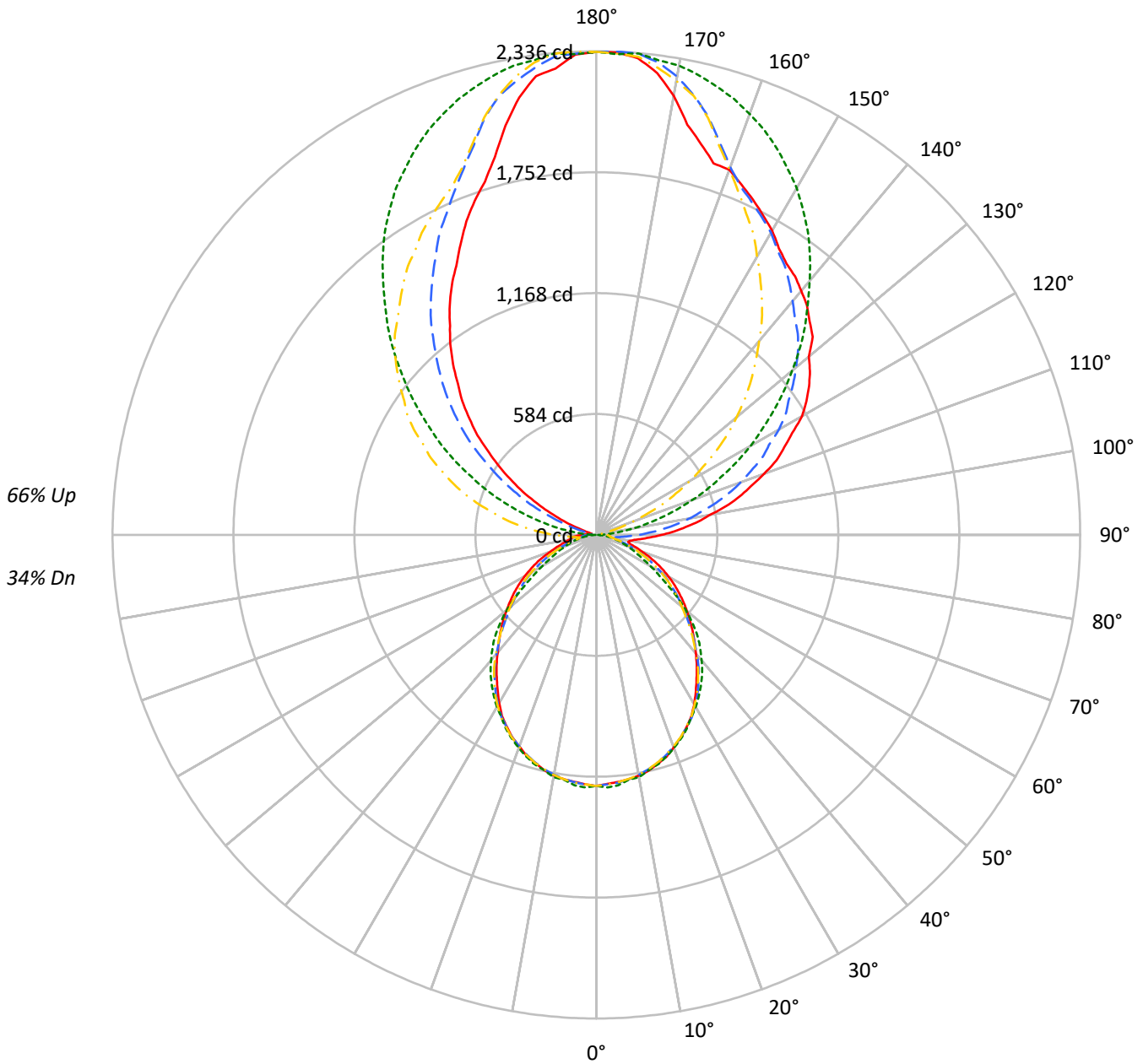
Lumens per Lamp: N/A
Luminaire Lumens: 8434.9 lumens
Efficiency: N/A
Efficacy: 70.4 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 119.786
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



— 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	0
RCR																		
0	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	34
1	94	90	86	83	85	81	78	75	65	63	61	50	49	47	37	36	35	29
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	32	31	30	24
3	78	69	62	57	71	63	57	52	51	46	43	39	36	34	29	27	25	21
4	72	61	54	48	65	56	49	44	45	40	37	35	32	29	26	24	22	18
5	66	55	47	41	59	50	43	38	40	35	32	32	28	25	23	21	19	16
6	61	49	41	36	55	45	38	33	36	31	28	29	25	22	21	19	17	14
7	56	44	37	31	50	40	34	29	33	28	24	26	22	20	19	17	15	12
8	52	40	33	27	47	37	30	25	30	25	21	24	20	18	18	15	14	11
9	48	37	29	24	44	33	27	23	27	23	19	22	18	16	17	14	12	10
10	45	33	26	22	41	31	24	20	25	20	17	20	17	14	15	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7831	7831	7831	7831
5°	7693	7237	7693	7237
10°	7601	6627	7601	6627
15°	7445	6054	7412	6054
20°	7230	5520	7198	5520
25°	6983	5019	6949	5019
30°	6643	4538	6597	4538
35°	6198	4085	6162	4085
40°	5790	3622	5739	3622
45°	5435	3155	5393	3155
50°	5092	2581	5047	2581
55°	4761	1930	4728	1930
60°	4398	1431	4378	1431
65°	3971	1063	3971	1063
70°	3424	799	3447	799
75°	3015	586	3105	586
80°	3837	377	3103	377
85°	7384	176	3758	176



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	114.2	1.4
10°-20°	321.9	3.8
20°-30°	473.1	5.6
30°-40°	537.9	6.4
40°-50°	507.1	6.0
50°-60°	405.0	4.8
60°-70°	267.7	3.2
70°-80°	141.4	1.7
80°-90°	102.9	1.2
90°-100°	181.9	2.2
100°-110°	361.3	4.3
110°-120°	619.6	7.3
120°-130°	842.0	10.0
130°-140°	960.5	11.4
140°-150°	958.1	11.4
150°-160°	834.4	9.9
160°-170°	587.0	7.0
170°-180°	218.6	2.6
0°-30°	909.2	10.8
0°-40°	1447.2	17.2
0°-60°	2359.3	28.0
0°-90°	2871.4	34.0
90°-120°	1162.8	13.8
90°-150°	3923.4	46.5
90°-180°	5563.0	66.0
0°-180°	8434.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1212	1212	1212	1212	1212	
5°	1197	1214	1197	1214	1197	114
15°	1144	1148	1140	1148	1144	323
25°	1028	1033	1022	1033	1028	472
35°	844	881	839	881	844	528
45°	657	691	652	691	657	508
55°	486	416	482	416	486	435
65°	318	219	318	219	318	314
75°	168	111	173	111	168	191
85°	218	30	111	30	218	168
90°	314	2	67	2	314	174
95°	431	67	41	67	431	380
105°	716	326	22	326	716	752
115°	1001	666	230	666	1001	994
125°	1254	1043	570	1043	1254	1119
135°	1456	1424	916	1424	1456	1124
145°	1600	1782	1232	1782	1600	1009
155°	1788	2061	1550	2061	1788	825
165°	1954	2242	1890	2242	1954	554
175°	2311	2335	2262	2335	2311	215
180°	2333	2333	2333	2333	2333	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5
2.5°	1204.1	1204.9	1206.4	1214.0	1220.8	1212.4	1206.4	1204.9	1205.7	1204.9	1206.4
5°	1197.4	1200.6	1201.3	1208.9	1214.0	1208.9	1199.7	1200.6	1197.4	1200.6	1199.7
7.5°	1190.5	1195.5	1190.4	1198.7	1192.9	1197.2	1188.8	1193.8	1190.5	1193.8	1188.8
10°	1180.3	1181.1	1177.7	1185.3	1188.7	1183.7	1176.0	1177.8	1180.3	1177.8	1176.0
12.5°	1166.6	1160.7	1159.1	1164.1	1163.4	1164.1	1159.1	1157.4	1163.4	1157.4	1159.1
15°	1144.5	1145.4	1140.4	1145.5	1148.1	1143.9	1138.8	1142.1	1139.5	1142.1	1138.8
17.5°	1124.2	1121.7	1115.8	1118.4	1123.5	1118.4	1114.2	1120.0	1119.3	1120.0	1114.2
20°	1091.9	1092.8	1088.7	1096.3	1095.5	1094.8	1087.0	1089.6	1087.0	1089.6	1087.0
22.5°	1062.2	1064.0	1061.5	1060.7	1065.9	1059.1	1059.9	1060.7	1059.0	1060.7	1059.9
25°	1027.5	1027.5	1027.5	1035.3	1032.8	1033.7	1024.3	1022.5	1022.5	1022.5	1024.3
27.5°	991.0	989.3	995.4	1000.5	992.1	998.8	992.0	984.4	986.1	984.4	992.0
30°	944.4	946.1	952.8	967.3	959.9	964.0	947.9	941.2	937.8	941.2	947.9
32.5°	893.4	900.3	909.6	929.2	921.7	925.9	904.7	893.7	887.0	893.7	904.7
35°	843.5	846.1	860.5	885.1	881.0	880.2	855.6	841.2	838.6	841.2	855.6
37.5°	796.9	792.7	810.4	836.8	839.3	831.8	805.5	787.7	792.0	787.7	805.5
40°	746.8	747.7	755.3	785.9	790.2	782.7	748.7	741.1	740.2	741.1	748.7
42.5°	701.9	693.4	699.5	731.7	742.7	728.4	694.5	686.8	695.2	686.8	694.5
45°	657.0	646.0	646.8	674.8	690.9	671.5	640.2	641.0	652.0	641.0	640.2
47.5°	613.8	600.2	593.4	614.6	629.1	613.0	586.8	595.2	608.8	595.2	586.8
50°	569.7	556.9	543.4	556.1	563.0	552.8	536.7	550.4	564.7	550.4	536.7
52.5°	529.0	514.5	496.8	498.4	489.2	495.1	491.9	507.9	524.0	507.9	491.9
55°	485.7	473.0	451.8	437.5	416.3	434.1	446.9	468.0	482.4	468.0	446.9
57.5°	445.0	435.7	408.5	380.6	352.7	377.3	403.6	430.8	441.7	430.8	403.6
60°	401.9	394.2	362.8	323.0	302.6	321.3	359.5	390.9	400.1	390.9	359.5
62.5°	359.4	353.4	317.0	271.2	254.4	269.6	313.8	350.2	357.8	350.2	313.8
65°	317.9	308.6	271.2	228.8	218.7	227.2	269.6	306.9	317.9	306.9	269.6
67.5°	276.3	265.3	229.7	189.9	188.2	189.9	228.1	263.7	276.3	263.7	228.1
70°	233.2	222.1	190.7	157.7	158.5	157.7	190.7	223.7	234.8	223.7	190.7
72.5°	200.9	182.2	156.8	130.6	133.1	128.8	156.8	183.9	204.2	183.9	156.8
75°	167.8	147.5	122.9	103.4	111.1	103.4	124.6	149.1	172.8	149.1	124.6
77.5°	157.2	127.8	95.8	83.0	88.1	83.0	97.4	122.8	150.7	122.8	97.4
80°	164.1	128.8	79.6	62.6	67.7	62.6	76.3	102.4	132.7	102.4	76.3
82.5°	185.0	149.8	86.5	44.9	47.4	44.9	66.8	90.5	122.4	90.5	66.8
85°	218.3	186.5	113.6	39.7	29.6	36.4	65.8	86.0	111.1	86.0	65.8
87.5°	262.3	236.4	152.0	56.8	7.6	33.7	58.0	78.3	92.6	78.3	58.0
90°	313.9	290.6	204.6	84.6	2.5	22.0	41.4	58.2	66.7	58.2	41.4
92.5°	376.2	353.1	257.9	128.1	27.2	14.3	32.1	48.1	53.2	48.1	32.1
95°	431.2	421.4	322.9	174.8	66.7	10.0	26.1	38.9	40.6	38.9	26.1
97.5°	497.8	488.7	388.6	231.6	117.9	20.6	24.3	35.5	36.3	35.5	24.3
100°	555.4	551.9	456.0	302.5	180.4	55.2	19.2	34.3	36.1	34.3	19.2
102.5°	642.4	620.2	518.4	370.0	248.1	103.0	27.3	26.7	29.3	26.7	27.3
105°	715.6	690.0	598.4	440.9	325.6	167.3	66.0	27.4	21.7	27.4	66.0
107.5°	781.4	762.5	670.9	513.4	407.9	241.5	122.0	63.5	43.0	63.5	122.0
110°	861.3	840.7	741.7	586.8	493.7	321.4	186.3	115.5	89.9	115.5	186.3



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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°	940.5	924.8	807.8	662.7	582.7	407.2	265.4	181.3	157.5	181.3	265.4
115°	1001.4	992.3	883.5	733.6	665.9	504.5	352.8	258.9	230.0	258.9	352.8
117.5°	1065.7	1064.0	939.6	806.0	764.8	591.8	433.5	337.1	305.8	337.1	433.5
120°	1146.4	1133.3	1017.0	878.6	858.8	684.1	522.6	426.2	394.9	426.2	522.6
122.5°	1202.5	1194.3	1083.8	947.8	947.8	778.1	609.1	511.8	478.9	511.8	609.1
125°	1253.5	1250.3	1133.3	1017.0	1043.4	865.4	704.6	605.8	569.6	605.8	704.6
127.5°	1299.7	1304.7	1197.6	1092.9	1140.7	954.5	798.6	689.8	651.9	689.8	798.6
130°	1339.3	1355.8	1258.5	1162.1	1233.0	1051.6	882.7	773.9	749.2	773.9	882.7
132.5°	1416.7	1406.9	1321.2	1233.8	1331.9	1141.5	971.7	858.0	829.9	858.0	971.7
135°	1456.3	1459.7	1375.6	1294.8	1424.2	1230.5	1055.8	943.7	915.7	943.7	1055.8
137.5°	1504.1	1494.3	1418.4	1369.0	1509.9	1316.3	1138.3	1034.4	989.9	1034.4	1138.3
140°	1538.8	1537.1	1474.5	1434.9	1602.2	1400.3	1222.3	1116.8	1075.5	1116.8	1222.3
142.5°	1575.0	1584.9	1530.4	1507.4	1694.5	1489.4	1312.9	1197.6	1158.0	1197.6	1312.9
145°	1599.7	1621.1	1586.5	1598.1	1781.9	1588.3	1392.0	1275.0	1232.2	1275.0	1392.0
147.5°	1641.0	1668.9	1627.8	1662.4	1857.7	1675.6	1471.2	1355.8	1317.8	1355.8	1471.2
150°	1697.0	1710.2	1685.4	1751.4	1935.1	1772.7	1551.9	1433.3	1395.4	1433.3	1551.9
152.5°	1741.5	1757.9	1729.9	1848.6	1996.1	1861.8	1641.0	1509.1	1464.6	1509.1	1641.0
155°	1787.6	1794.2	1774.5	1942.6	2061.3	1949.2	1711.8	1593.2	1550.3	1593.2	1711.8
157.5°	1830.6	1843.7	1820.6	2013.5	2117.3	2025.0	1792.6	1677.2	1639.3	1677.2	1792.6
160°	1876.6	1876.6	1889.8	2095.9	2163.5	2090.9	1878.3	1769.5	1716.8	1769.5	1878.3
162.5°	1881.6	1912.9	1983.8	2153.5	2207.9	2148.6	1970.6	1835.5	1789.3	1835.5	1970.6
165°	1954.1	1982.2	2089.3	2204.6	2242.5	2199.7	2084.3	1944.3	1889.8	1944.3	2084.3
167.5°	2029.9	2089.3	2175.0	2262.4	2275.6	2247.5	2171.7	2074.4	2025.0	2074.4	2171.7
170°	2152.8	2203.8	2247.5	2283.8	2301.9	2285.5	2226.1	2177.4	2146.1	2177.4	2226.1
172.5°	2250.0	2283.8	2300.3	2323.4	2311.8	2305.2	2275.6	2252.4	2235.2	2252.4	2275.6
175°	2310.9	2318.4	2333.2	2325.0	2334.9	2316.7	2318.4	2329.9	2261.5	2329.9	2318.4
177.5°	2332.3	2344.8	2336.5	2321.6	2323.4	2320.1	2326.6	2333.2	2322.5	2333.2	2326.6
180°	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5
2.5°	1212.4	1220.8	1214.0	1206.4	1204.9	1204.1
5°	1208.9	1214.0	1208.9	1201.3	1200.6	1197.4
7.5°	1197.2	1192.9	1198.7	1190.4	1195.5	1190.5
10°	1183.7	1188.7	1185.3	1177.7	1181.1	1180.3
12.5°	1164.1	1163.4	1164.1	1159.1	1160.7	1166.6
15°	1143.9	1148.1	1145.5	1140.4	1145.4	1144.5
17.5°	1118.4	1123.5	1118.4	1115.8	1121.7	1124.2
20°	1094.8	1095.5	1096.3	1088.7	1092.8	1091.9
22.5°	1059.1	1065.9	1060.7	1061.5	1064.0	1062.2
25°	1033.7	1032.8	1035.3	1027.5	1027.5	1027.5
27.5°	998.8	992.1	1000.5	995.4	989.3	991.0
30°	964.0	959.9	967.3	952.8	946.1	944.4
32.5°	925.9	921.7	929.2	909.6	900.3	893.4
35°	880.2	881.0	885.1	860.5	846.1	843.5
37.5°	831.8	839.3	836.8	810.4	792.7	796.9
40°	782.7	790.2	785.9	755.3	747.7	746.8
42.5°	728.4	742.7	731.7	699.5	693.4	701.9
45°	671.5	690.9	674.8	646.8	646.0	657.0
47.5°	613.0	629.1	614.6	593.4	600.2	613.8
50°	552.8	563.0	556.1	543.4	556.9	569.7
52.5°	495.1	489.2	498.4	496.8	514.5	529.0
55°	434.1	416.3	437.5	451.8	473.0	485.7
57.5°	377.3	352.7	380.6	408.5	435.7	445.0
60°	321.3	302.6	323.0	362.8	394.2	401.9
62.5°	269.6	254.4	271.2	317.0	353.4	359.4
65°	227.2	218.7	228.8	271.2	308.6	317.9
67.5°	189.9	188.2	189.9	229.7	265.3	276.3
70°	157.7	158.5	157.7	190.7	222.1	233.2
72.5°	128.8	133.1	130.6	156.8	182.2	200.9
75°	103.4	111.1	103.4	122.9	147.5	167.8
77.5°	83.0	88.1	83.0	95.8	127.8	157.2
80°	62.6	67.7	62.6	79.6	128.8	164.1
82.5°	44.9	47.4	44.9	86.5	149.8	185.0
85°	36.4	29.6	39.7	113.6	186.5	218.3
87.5°	33.7	7.6	56.8	152.0	236.4	262.3
90°	22.0	2.5	84.6	204.6	290.6	313.9
92.5°	14.3	27.2	128.1	257.9	353.1	376.2
95°	10.0	66.7	174.8	322.9	421.4	431.2
97.5°	20.6	117.9	231.6	388.6	488.7	497.8
100°	55.2	180.4	302.5	456.0	551.9	555.4
102.5°	103.0	248.1	370.0	518.4	620.2	642.4
105°	167.3	325.6	440.9	598.4	690.0	715.6
107.5°	241.5	407.9	513.4	670.9	762.5	781.4
110°	321.4	493.7	586.8	741.7	840.7	861.3



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CATALOG NUMBER: MWL-4-66-33-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	407.2	582.7	662.7	807.8	924.8	940.5
115°	504.5	665.9	733.6	883.5	992.3	1001.4
117.5°	591.8	764.8	806.0	939.6	1064.0	1065.7
120°	684.1	858.8	878.6	1017.0	1133.3	1146.4
122.5°	778.1	947.8	947.8	1083.8	1194.3	1202.5
125°	865.4	1043.4	1017.0	1133.3	1250.3	1253.5
127.5°	954.5	1140.7	1092.9	1197.6	1304.7	1299.7
130°	1051.6	1233.0	1162.1	1258.5	1355.8	1339.3
132.5°	1141.5	1331.9	1233.8	1321.2	1406.9	1416.7
135°	1230.5	1424.2	1294.8	1375.6	1459.7	1456.3
137.5°	1316.3	1509.9	1369.0	1418.4	1494.3	1504.1
140°	1400.3	1602.2	1434.9	1474.5	1537.1	1538.8
142.5°	1489.4	1694.5	1507.4	1530.4	1584.9	1575.0
145°	1588.3	1781.9	1598.1	1586.5	1621.1	1599.7
147.5°	1675.6	1857.7	1662.4	1627.8	1668.9	1641.0
150°	1772.7	1935.1	1751.4	1685.4	1710.2	1697.0
152.5°	1861.8	1996.1	1848.6	1729.9	1757.9	1741.5
155°	1949.2	2061.3	1942.6	1774.5	1794.2	1787.6
157.5°	2025.0	2117.3	2013.5	1820.6	1843.7	1830.6
160°	2090.9	2163.5	2095.9	1889.8	1876.6	1876.6
162.5°	2148.6	2207.9	2153.5	1983.8	1912.9	1881.6
165°	2199.7	2242.5	2204.6	2089.3	1982.2	1954.1
167.5°	2247.5	2275.6	2262.4	2175.0	2089.3	2029.9
170°	2285.5	2301.9	2283.8	2247.5	2203.8	2152.8
172.5°	2305.2	2311.8	2323.4	2300.3	2283.8	2250.0
175°	2316.7	2334.9	2325.0	2333.2	2318.4	2310.9
177.5°	2320.1	2323.4	2321.6	2336.5	2344.8	2332.3
180°	2333.2	2333.2	2333.2	2333.2	2333.2	2333.2

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