

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: P392663

Luminaire Tested: **MWL-4-34-45-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392663
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-4-34-45-UNV-L840-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

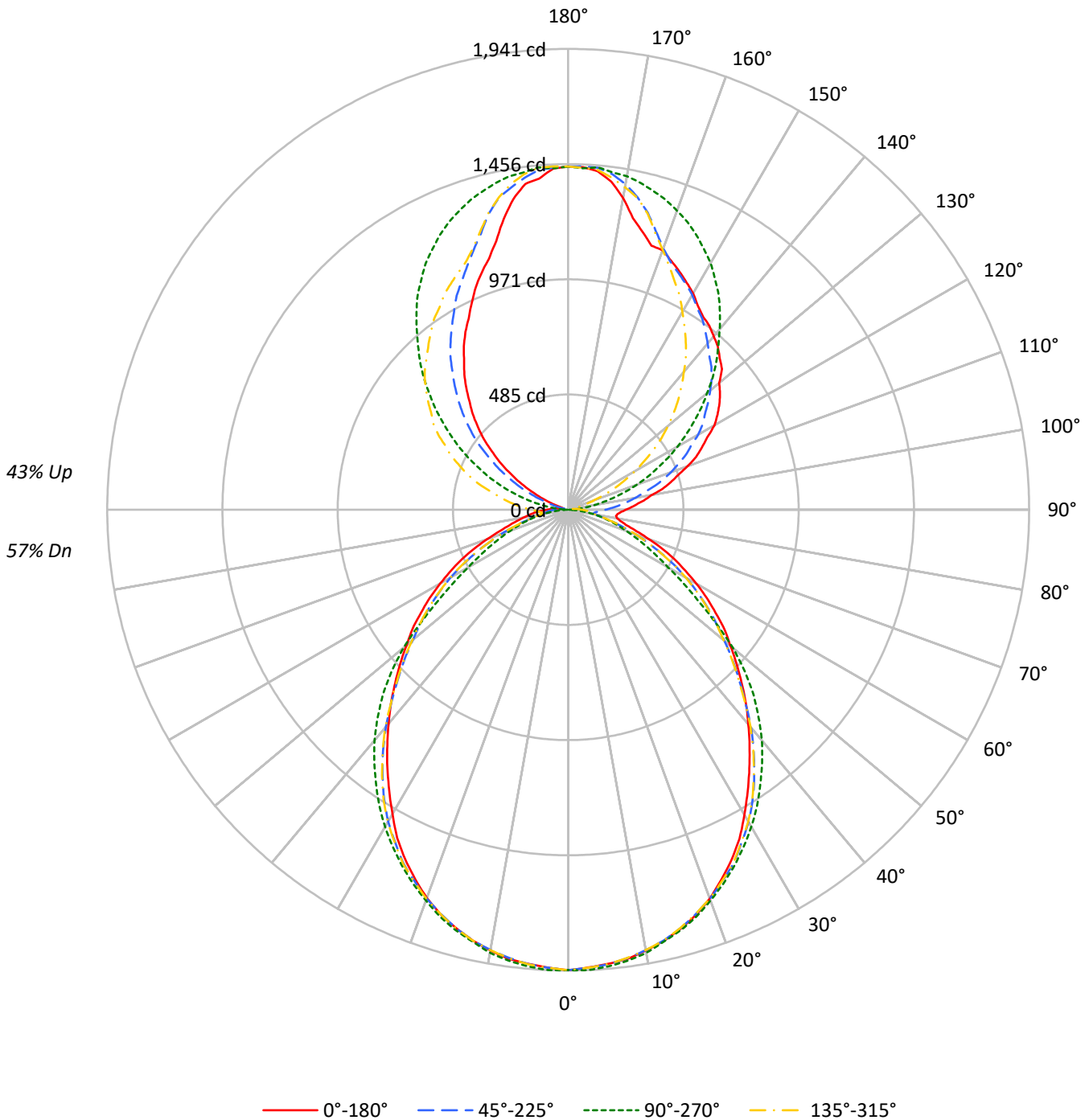
Lumens per Lamp: N/A
Luminaire Lumens: 7981.9 lumens
Efficiency: N/A
Efficacy: 100.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 79.4
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



TEST NUMBER: P392663
CATALOG NUMBER: MWL-4-34-45-UNV-L840-EDD

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	57
1	99	95	91	88	92	89	85	82	77	74	72	65	64	62	55	54	53	48
2	91	83	77	72	84	78	73	68	68	64	60	58	55	52	49	47	45	41
3	83	74	66	61	77	69	63	57	60	55	51	52	48	45	44	41	39	35
4	76	66	58	52	71	61	54	49	53	48	44	46	42	39	39	36	34	30
5	70	59	51	45	65	55	48	42	48	42	38	42	37	34	36	32	30	27
6	65	53	45	39	60	50	42	37	43	38	33	38	33	30	32	29	26	23
7	60	48	40	34	56	45	38	33	40	34	30	34	30	26	30	26	23	21
8	56	43	36	30	52	41	34	29	36	30	26	32	27	24	27	24	21	19
9	52	40	32	27	48	38	31	26	33	28	24	29	25	21	25	22	19	17
10	49	37	29	25	45	35	28	24	31	25	21	27	23	19	24	20	17	16

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	12523	12523	12523	12523
5°	12336	11513	12336	11513
10°	12139	10565	12139	10565
15°	11885	9666	11865	9666
20°	11543	8829	11523	8829
25°	11058	8043	11037	8043
30°	10440	7291	10412	7291
35°	9774	6539	9752	6539
40°	9149	5818	9118	5818
45°	8537	5042	8513	5042
50°	7965	4145	7938	4145
55°	7431	3098	7411	3098
60°	6818	2293	6807	2293
65°	6172	1745	6172	1745
70°	5300	1305	5316	1305
75°	4582	944	4638	944
80°	4898	602	4447	602
85°	7056	280	4813	280



TEST NUMBER: P392663

CATALOG NUMBER: MWL-4-34-45-UNV-L840-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	182.7	2.3
10°-20°	515.1	6.5
20°-30°	755.2	9.5
30°-40°	854.9	10.7
40°-50°	805.3	10.1
50°-60°	643.1	8.1
60°-70°	422.8	5.3
70°-80°	216.6	2.7
80°-90°	116.9	1.5
90°-100°	130.7	1.6
100°-110°	226.3	2.8
110°-120°	384.7	4.8
120°-130°	522.2	6.5
130°-140°	595.5	7.5
140°-150°	593.8	7.4
150°-160°	517.0	6.5
160°-170°	363.7	4.6
170°-180°	135.4	1.7
0°-30°	1453.0	18.2
0°-40°	2307.9	28.9
0°-60°	3756.4	47.1
0°-90°	4512.6	56.5
90°-120°	741.7	9.3
90°-150°	2453.1	30.7
90°-180°	3469.0	43.5
0°-180°	7981.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1939	1939	1939	1939	1939	
5°	1920	1931	1920	1931	1920	182
15°	1827	1833	1824	1833	1827	515
25°	1627	1655	1624	1655	1627	747
35°	1330	1410	1327	1410	1330	832
45°	1032	1104	1029	1104	1032	798
55°	758	668	756	668	758	679
65°	494	359	494	359	494	487
75°	255	179	258	179	255	282
85°	209	47	142	47	209	171
90°	242	2	89	2	242	134
95°	295	42	53	42	295	255
105°	447	202	17	202	447	471
115°	621	413	144	413	621	616
125°	777	647	354	647	777	694
135°	903	882	568	882	903	697
145°	991	1105	764	1105	991	625
155°	1108	1277	961	1277	1108	511
165°	1211	1389	1171	1389	1211	343
175°	1431	1447	1400	1447	1431	133
180°	1445	1445	1445	1445	1445	



TEST NUMBER: P392663

CATALOG NUMBER: MWL-4-34-45-UNV-L840-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1939.1	1939.1	1939.1	1939.1	1939.1	1939.1	1939.1	1939.1	1939.1	1939.1	1939.1
2.5°	1930.1	1936.1	1931.2	1942.2	1941.2	1941.2	1931.2	1936.1	1931.1	1936.1	1931.2
5°	1920.1	1926.1	1922.2	1930.2	1931.2	1930.2	1921.1	1926.1	1920.1	1926.1	1921.1
7.5°	1909.1	1910.1	1905.1	1916.2	1916.2	1915.1	1904.1	1909.1	1909.1	1909.1	1904.1
10°	1885.1	1889.1	1884.1	1895.1	1895.1	1894.1	1883.1	1887.1	1885.1	1887.1	1883.1
12.5°	1860.2	1861.1	1858.1	1867.1	1863.1	1867.1	1858.1	1859.1	1858.1	1859.1	1858.1
15°	1827.2	1826.1	1825.1	1835.1	1833.1	1834.1	1824.1	1824.1	1824.1	1824.1	1824.1
17.5°	1790.2	1789.1	1786.1	1796.1	1797.1	1796.1	1785.1	1788.1	1787.1	1788.1	1785.1
20°	1743.2	1742.2	1744.1	1752.1	1752.1	1751.1	1743.1	1740.1	1740.1	1740.1	1743.1
22.5°	1686.2	1692.2	1694.1	1706.1	1705.1	1705.1	1693.1	1690.1	1684.1	1690.1	1693.1
25°	1627.2	1634.2	1645.1	1655.1	1655.1	1654.1	1643.1	1631.1	1624.1	1631.1	1643.1
27.5°	1562.2	1570.2	1581.1	1602.1	1600.1	1601.1	1579.1	1567.1	1559.1	1567.1	1579.1
30°	1484.2	1496.2	1519.2	1541.1	1542.1	1539.1	1516.1	1493.1	1480.1	1493.1	1516.1
32.5°	1406.2	1418.2	1446.2	1475.1	1480.1	1473.1	1443.1	1414.1	1402.1	1414.1	1443.1
35°	1330.1	1338.1	1366.1	1407.1	1410.1	1404.1	1363.1	1335.1	1327.1	1335.1	1363.1
37.5°	1254.1	1256.1	1283.1	1332.1	1341.1	1329.1	1280.1	1253.1	1251.1	1253.1	1280.1
40°	1180.1	1175.1	1198.1	1248.1	1269.1	1246.1	1194.1	1171.1	1176.1	1171.1	1194.1
42.5°	1108.1	1097.1	1105.1	1165.1	1187.1	1163.1	1102.1	1093.1	1104.1	1093.1	1102.1
45°	1032.1	1019.1	1019.1	1073.1	1104.1	1071.1	1015.0	1016.1	1029.1	1016.1	1015.0
47.5°	962.1	946.1	939.1	984.1	1009.1	983.1	935.0	943.1	959.1	943.1	935.0
50°	891.1	878.1	858.1	885.1	904.1	883.1	854.0	874.0	888.1	874.0	854.0
52.5°	830.1	812.1	785.1	794.1	782.1	792.1	782.0	808.0	827.1	808.0	782.0
55°	758.1	748.1	714.1	704.1	668.1	702.0	711.0	745.0	756.1	745.0	711.0
57.5°	692.1	686.1	643.1	606.1	572.1	604.0	640.0	683.0	690.1	683.0	640.0
60°	623.1	620.1	574.1	518.1	485.1	517.0	572.0	618.0	622.1	618.0	572.0
62.5°	556.1	552.1	501.1	434.1	420.0	433.0	499.0	550.0	555.1	550.0	499.0
65°	494.1	483.1	430.1	362.1	359.0	361.0	429.0	482.0	494.1	482.0	429.0
67.5°	427.1	410.1	360.1	302.0	307.0	302.0	359.0	409.0	427.1	409.0	359.0
70°	361.0	339.0	299.0	251.0	259.0	251.0	299.0	340.1	362.1	340.1	299.0
72.5°	302.0	277.0	241.0	205.0	217.0	204.0	241.0	278.1	304.1	278.1	241.0
75°	255.0	226.0	189.0	163.0	179.0	163.0	190.0	227.1	258.1	227.1	190.0
77.5°	227.2	187.1	145.0	126.0	144.0	126.0	146.0	184.1	223.1	184.1	146.0
80°	209.5	170.4	118.1	94.0	108.0	94.0	116.0	154.1	190.2	154.1	116.0
82.5°	203.0	164.8	109.3	67.0	76.0	67.0	97.1	128.1	164.3	128.1	97.1
85°	208.6	177.4	116.8	55.1	47.0	53.0	87.2	115.2	142.3	115.2	87.2
87.5°	222.4	197.2	131.3	59.4	16.0	45.1	73.2	99.3	117.3	99.3	73.2
90°	242.1	222.9	157.1	68.8	2.0	30.0	56.1	79.1	89.1	79.1	56.1
92.5°	269.0	253.8	184.8	89.4	17.3	19.0	45.1	65.1	69.1	65.1	45.1
95°	294.8	289.7	217.7	112.1	41.8	10.1	34.1	53.0	53.1	53.0	34.1
97.5°	327.7	323.6	250.5	143.8	73.4	13.2	25.1	43.1	42.1	43.1	25.1
100°	357.5	355.4	286.4	187.7	112.2	34.7	16.1	35.2	36.2	35.2	16.1
102.5°	406.6	391.4	322.3	229.5	154.0	64.2	18.3	24.2	27.2	24.2	18.3
105°	446.6	429.3	371.2	273.3	201.9	104.0	41.8	19.2	17.1	19.2	41.8
107.5°	484.4	473.2	416.1	319.2	252.9	150.9	76.5	40.7	27.5	40.7	76.5
110°	534.4	522.2	460.0	364.1	307.0	199.9	116.2	73.4	57.1	73.4	116.2



TEST NUMBER: P392663

CATALOG NUMBER: MWL-4-34-45-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	583.4	574.2	500.8	411.0	362.1	252.9	165.2	114.2	98.9	114.2	165.2
115°	621.1	616.0	547.7	454.9	413.1	313.1	219.3	162.1	143.8	162.1	219.3
117.5°	660.9	659.9	582.4	499.7	474.3	367.2	269.2	210.1	190.7	210.1	269.2
120°	710.9	702.7	631.3	544.6	532.4	424.3	325.3	265.1	245.8	265.1	325.3
122.5°	745.5	740.4	672.1	587.5	587.5	482.4	378.4	318.2	297.8	318.2	378.4
125°	777.2	775.1	702.7	630.3	646.6	536.5	437.5	376.3	353.9	376.3	437.5
127.5°	805.7	808.8	742.5	678.2	706.8	592.5	495.7	428.3	404.9	428.3	495.7
130°	830.2	840.4	780.2	721.1	763.9	652.7	547.7	480.4	465.1	480.4	547.7
132.5°	878.1	872.0	819.0	764.9	825.1	707.8	602.7	532.4	515.0	532.4	602.7
135°	902.6	904.7	852.6	802.7	882.2	762.9	654.8	585.4	568.1	585.4	654.8
137.5°	932.2	926.1	879.2	848.6	935.3	815.9	705.8	641.5	614.0	641.5	705.8
140°	953.6	952.6	913.8	889.4	992.4	867.9	757.8	692.5	667.0	692.5	757.8
142.5°	976.1	982.2	948.5	934.2	1049.5	923.0	813.9	742.5	718.0	742.5	813.9
145°	991.4	1004.6	983.2	990.3	1104.6	984.2	862.8	790.4	763.9	790.4	862.8
147.5°	1016.9	1034.2	1008.7	1030.1	1150.5	1038.3	911.8	840.4	816.9	840.4	911.8
150°	1051.5	1059.7	1044.4	1085.2	1199.4	1098.5	961.8	888.3	864.9	888.3	961.8
152.5°	1079.1	1089.3	1071.9	1145.4	1237.2	1153.5	1016.9	935.3	907.7	935.3	1016.9
155°	1107.6	1111.7	1099.5	1203.5	1277.0	1207.6	1060.7	987.3	960.8	987.3	1060.7
157.5°	1134.2	1142.3	1128.0	1247.4	1311.6	1254.5	1110.7	1039.3	1015.8	1039.3	1110.7
160°	1162.7	1162.7	1170.9	1298.4	1340.2	1295.3	1163.7	1096.4	1063.8	1096.4	1163.7
162.5°	1165.8	1185.2	1229.0	1334.1	1367.7	1331.0	1220.9	1137.2	1108.7	1137.2	1220.9
165°	1210.7	1228.0	1294.3	1365.7	1389.2	1362.6	1291.2	1204.5	1170.9	1204.5	1291.2
167.5°	1257.6	1294.3	1347.3	1401.4	1409.6	1392.2	1345.3	1285.1	1254.5	1285.1	1345.3
170°	1333.1	1365.7	1392.2	1414.7	1425.9	1415.7	1379.0	1349.4	1329.0	1349.4	1379.0
172.5°	1393.3	1414.7	1424.9	1439.1	1433.0	1427.9	1409.6	1395.3	1384.1	1395.3	1409.6
175°	1431.0	1436.1	1445.3	1440.2	1447.3	1435.1	1436.1	1443.2	1400.4	1443.2	1436.1
177.5°	1444.3	1452.4	1447.3	1438.1	1439.1	1437.1	1441.2	1445.3	1438.1	1445.3	1441.2
180°	1445.3	1445.3	1445.3	1445.3	1445.3	1445.3	1445.3	1445.3	1445.3	1445.3	1445.3



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CATALOG NUMBER: MWL-4-34-45-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1939.1	1939.1	1939.1	1939.1	1939.1	1939.1
2.5°	1941.2	1941.2	1942.2	1931.2	1936.1	1930.1
5°	1930.2	1931.2	1930.2	1922.2	1926.1	1920.1
7.5°	1915.1	1916.2	1916.2	1905.1	1910.1	1909.1
10°	1894.1	1895.1	1895.1	1884.1	1889.1	1885.1
12.5°	1867.1	1863.1	1867.1	1858.1	1861.1	1860.2
15°	1834.1	1833.1	1835.1	1825.1	1826.1	1827.2
17.5°	1796.1	1797.1	1796.1	1786.1	1789.1	1790.2
20°	1751.1	1752.1	1752.1	1744.1	1742.2	1743.2
22.5°	1705.1	1705.1	1706.1	1694.1	1692.2	1686.2
25°	1654.1	1655.1	1655.1	1645.1	1634.2	1627.2
27.5°	1601.1	1600.1	1602.1	1581.1	1570.2	1562.2
30°	1539.1	1542.1	1541.1	1519.2	1496.2	1484.2
32.5°	1473.1	1480.1	1475.1	1446.2	1418.2	1406.2
35°	1404.1	1410.1	1407.1	1366.1	1338.1	1330.1
37.5°	1329.1	1341.1	1332.1	1283.1	1256.1	1254.1
40°	1246.1	1269.1	1248.1	1198.1	1175.1	1180.1
42.5°	1163.1	1187.1	1165.1	1105.1	1097.1	1108.1
45°	1071.1	1104.1	1073.1	1019.1	1019.1	1032.1
47.5°	983.1	1009.1	984.1	939.1	946.1	962.1
50°	883.1	904.1	885.1	858.1	878.1	891.1
52.5°	792.1	782.1	794.1	785.1	812.1	830.1
55°	702.0	668.1	704.1	714.1	748.1	758.1
57.5°	604.0	572.1	606.1	643.1	686.1	692.1
60°	517.0	485.1	518.1	574.1	620.1	623.1
62.5°	433.0	420.0	434.1	501.1	552.1	556.1
65°	361.0	359.0	362.1	430.1	483.1	494.1
67.5°	302.0	307.0	302.0	360.1	410.1	427.1
70°	251.0	259.0	251.0	299.0	339.0	361.0
72.5°	204.0	217.0	205.0	241.0	277.0	302.0
75°	163.0	179.0	163.0	189.0	226.0	255.0
77.5°	126.0	144.0	126.0	145.0	187.1	227.2
80°	94.0	108.0	94.0	118.1	170.4	209.5
82.5°	67.0	76.0	67.0	109.3	164.8	203.0
85°	53.0	47.0	55.1	116.8	177.4	208.6
87.5°	45.1	16.0	59.4	131.3	197.2	222.4
90°	30.0	2.0	68.8	157.1	222.9	242.1
92.5°	19.0	17.3	89.4	184.8	253.8	269.0
95°	10.1	41.8	112.1	217.7	289.7	294.8
97.5°	13.2	73.4	143.8	250.5	323.6	327.7
100°	34.7	112.2	187.7	286.4	355.4	357.5
102.5°	64.2	154.0	229.5	322.3	391.4	406.6
105°	104.0	201.9	273.3	371.2	429.3	446.6
107.5°	150.9	252.9	319.2	416.1	473.2	484.4
110°	199.9	307.0	364.1	460.0	522.2	534.4



TEST NUMBER: P392663

CATALOG NUMBER: MWL-4-34-45-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	252.9	362.1	411.0	500.8	574.2	583.4
115°	313.1	413.1	454.9	547.7	616.0	621.1
117.5°	367.2	474.3	499.7	582.4	659.9	660.9
120°	424.3	532.4	544.6	631.3	702.7	710.9
122.5°	482.4	587.5	587.5	672.1	740.4	745.5
125°	536.5	646.6	630.3	702.7	775.1	777.2
127.5°	592.5	706.8	678.2	742.5	808.8	805.7
130°	652.7	763.9	721.1	780.2	840.4	830.2
132.5°	707.8	825.1	764.9	819.0	872.0	878.1
135°	762.9	882.2	802.7	852.6	904.7	902.6
137.5°	815.9	935.3	848.6	879.2	926.1	932.2
140°	867.9	992.4	889.4	913.8	952.6	953.6
142.5°	923.0	1049.5	934.2	948.5	982.2	976.1
145°	984.2	1104.6	990.3	983.2	1004.6	991.4
147.5°	1038.3	1150.5	1030.1	1008.7	1034.2	1016.9
150°	1098.5	1199.4	1085.2	1044.4	1059.7	1051.5
152.5°	1153.5	1237.2	1145.4	1071.9	1089.3	1079.1
155°	1207.6	1277.0	1203.5	1099.5	1111.7	1107.6
157.5°	1254.5	1311.6	1247.4	1128.0	1142.3	1134.2
160°	1295.3	1340.2	1298.4	1170.9	1162.7	1162.7
162.5°	1331.0	1367.7	1334.1	1229.0	1185.2	1165.8
165°	1362.6	1389.2	1365.7	1294.3	1228.0	1210.7
167.5°	1392.2	1409.6	1401.4	1347.3	1294.3	1257.6
170°	1415.7	1425.9	1414.7	1392.2	1365.7	1333.1
172.5°	1427.9	1433.0	1439.1	1424.9	1414.7	1393.3
175°	1435.1	1447.3	1440.2	1445.3	1436.1	1431.0
177.5°	1437.1	1439.1	1438.1	1447.3	1452.4	1444.3
180°	1445.3	1445.3	1445.3	1445.3	1445.3	1445.3

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