

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: P392665

Luminaire Tested: **MWL-4-34-60-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392665
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-L835-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

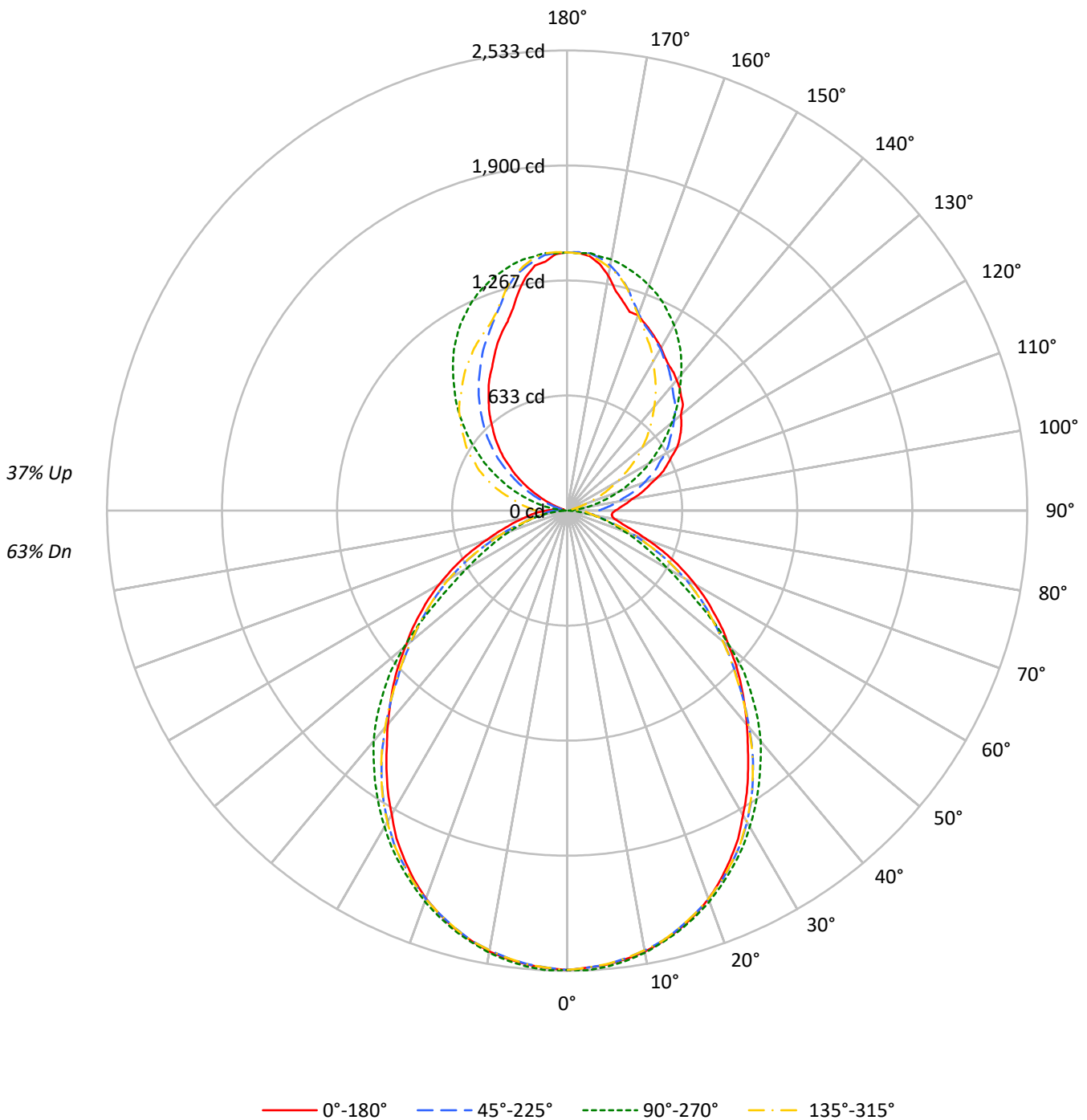
Lumens per Lamp: N/A
Luminaire Lumens: 9309.0 lumens
Efficiency: N/A
Efficacy: 94.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.19 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 4' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 98.5
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: P392665
CATALOG NUMBER: MWL-4-34-60-UNV-L835-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P392665

CATALOG NUMBER: MWL-4-34-60-UNV-L835-EDD

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	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°	16332	16332	16332	16332
5°	16120	15023	16120	15023
10°	15874	13775	15874	13775
15°	15523	12620	15503	12620
20°	15067	11539	15047	11539
25°	14422	10504	14400	10504
30°	13614	9507	13586	9507
35°	12762	8532	12740	8532
40°	11934	7601	11903	7601
45°	11195	6567	11171	6567
50°	10392	5384	10366	5384
55°	9682	4057	9662	4057
60°	8906	3012	8895	3012
65°	8006	2283	8006	2283
70°	6883	1689	6899	1689
75°	6039	1228	6095	1228
80°	6170	794	5726	794
85°	8331	358	6126	358



TEST NUMBER: P392665

CATALOG NUMBER: MWL-4-34-60-UNV-L835-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.4	2.6
10°-20°	672.3	7.2
20°-30°	985.8	10.6
30°-40°	1116.1	12.0
40°-50°	1051.4	11.3
50°-60°	840.7	9.0
60°-70°	552.1	5.9
70°-80°	282.3	3.0
80°-90°	144.3	1.5
90°-100°	138.9	1.5
100°-110°	224.3	2.4
110°-120°	378.6	4.1
120°-130°	514.0	5.5
130°-140°	585.9	6.3
140°-150°	584.3	6.3
150°-160°	508.6	5.5
160°-170°	357.7	3.8
170°-180°	133.2	1.4
0°-30°	1896.5	20.4
0°-40°	3012.6	32.4
0°-60°	4904.8	52.7
0°-90°	5883.4	63.2
90°-120°	741.9	8.0
90°-150°	2426.1	26.1
90°-180°	3426.0	36.8
0°-180°	9309.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2529	2529	2529	2529	2529	
5°	2509	2520	2509	2520	2509	238
15°	2386	2393	2383	2393	2386	672
25°	2122	2161	2119	2161	2122	975
35°	1737	1840	1734	1840	1737	1086
45°	1353	1438	1350	1438	1353	1044
55°	988	875	986	875	988	886
65°	641	470	641	470	641	633
75°	336	233	339	233	336	369
85°	246	60	181	60	246	205
90°	264	2	114	2	264	146
95°	307	41	70	41	307	263
105°	442	199	20	199	442	467
115°	611	406	142	406	611	607
125°	765	636	349	636	765	683
135°	888	868	559	868	888	685
145°	976	1086	753	1086	976	615
155°	1090	1256	945	1256	1090	503
165°	1191	1366	1152	1366	1191	338
175°	1406	1423	1376	1423	1406	131
180°	1421	1421	1421	1421	1421	



TEST NUMBER: P392665

CATALOG NUMBER: MWL-4-34-60-UNV-L835-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2528.8	2528.8	2528.8	2528.8	2528.8	2528.8	2528.8	2528.8	2528.8	2528.8	2528.8
2.5°	2519.0	2525.9	2518.1	2531.9	2532.9	2530.9	2518.1	2525.9	2520.0	2525.9	2518.1
5°	2509.2	2515.1	2507.3	2519.1	2520.1	2519.1	2506.2	2515.1	2509.2	2515.1	2506.2
7.5°	2489.5	2495.4	2485.6	2500.4	2499.5	2499.4	2484.6	2494.4	2489.5	2494.4	2484.6
10°	2465.0	2464.0	2458.1	2470.9	2470.9	2469.9	2457.1	2462.0	2465.0	2462.0	2457.1
12.5°	2428.7	2429.6	2425.6	2435.5	2433.5	2435.5	2425.6	2427.6	2426.6	2427.6	2425.6
15°	2386.4	2383.4	2380.4	2394.2	2393.2	2393.2	2379.5	2381.4	2383.4	2381.4	2379.5
17.5°	2334.3	2334.2	2330.3	2343.1	2344.1	2343.1	2329.3	2333.3	2331.3	2333.3	2329.3
20°	2275.4	2275.4	2275.3	2289.0	2290.0	2288.1	2274.3	2273.3	2272.3	2273.3	2274.3
22.5°	2202.6	2210.5	2212.4	2229.1	2227.1	2228.1	2211.4	2208.4	2200.6	2208.4	2211.4
25°	2122.1	2128.9	2142.6	2162.3	2161.3	2161.3	2140.6	2125.9	2119.0	2125.9	2140.6
27.5°	2037.5	2047.4	2067.9	2092.5	2091.5	2091.5	2065.9	2044.3	2034.5	2044.3	2065.9
30°	1935.3	1948.1	1979.6	2011.9	2010.9	2009.9	1976.5	1945.1	1931.3	1945.1	1976.5
32.5°	1841.0	1850.8	1887.2	1929.3	1928.3	1927.4	1884.1	1846.8	1836.9	1846.8	1884.1
35°	1736.7	1746.5	1783.9	1836.9	1839.9	1834.0	1780.9	1743.6	1733.8	1743.6	1780.9
37.5°	1633.5	1639.4	1676.8	1739.7	1748.5	1736.7	1673.8	1636.5	1630.6	1636.5	1673.8
40°	1539.2	1533.3	1558.8	1631.5	1658.1	1629.6	1554.9	1529.3	1535.2	1529.3	1554.9
42.5°	1444.8	1433.0	1444.8	1518.5	1551.9	1516.6	1441.9	1429.1	1440.9	1429.1	1441.9
45°	1353.4	1327.9	1328.8	1398.6	1437.9	1396.7	1324.8	1324.9	1350.5	1324.9	1324.8
47.5°	1261.0	1236.5	1226.6	1278.7	1322.0	1277.7	1222.6	1233.5	1258.1	1233.5	1222.6
50°	1162.7	1147.0	1121.5	1156.9	1174.5	1154.9	1117.4	1143.0	1159.8	1143.0	1117.4
52.5°	1081.2	1061.5	1024.2	1037.9	1029.1	1036.0	1021.1	1057.5	1078.2	1057.5	1021.1
55°	987.8	977.0	934.7	914.1	874.8	912.0	931.7	974.0	985.8	974.0	931.7
57.5°	905.3	896.4	842.4	796.2	745.1	794.1	839.3	893.4	903.3	893.4	839.3
60°	813.9	813.9	749.0	675.3	637.0	674.2	746.9	811.8	812.9	811.8	746.9
62.5°	726.4	723.4	654.6	567.2	550.4	566.1	652.6	721.4	725.4	721.4	652.6
65°	640.9	627.1	560.3	474.8	469.8	473.7	559.2	626.0	640.9	626.0	559.2
67.5°	552.4	535.7	469.9	394.1	402.9	394.1	468.8	534.6	552.4	534.6	468.8
70°	468.8	445.2	391.2	325.3	335.1	325.3	391.2	446.3	469.9	446.3	391.2
72.5°	400.0	361.7	314.5	266.3	281.1	265.4	314.5	362.8	402.1	362.8	314.5
75°	336.1	292.9	243.7	213.3	232.9	213.3	244.7	294.0	339.2	294.0	244.7
77.5°	297.0	243.8	190.7	165.1	186.7	165.1	191.6	240.9	293.0	240.9	191.6
80°	263.9	214.6	154.4	122.8	142.5	122.8	152.3	198.6	244.9	198.6	152.3
82.5°	250.6	204.2	137.9	88.5	98.3	88.5	125.9	168.2	212.6	168.2	125.9
85°	246.3	207.8	140.3	70.9	60.0	68.8	111.3	146.6	181.1	146.6	111.3
87.5°	251.0	223.3	149.7	72.1	19.7	58.1	92.6	127.1	147.7	127.1	92.6
90°	264.5	242.7	171.1	77.4	2.0	39.3	71.8	101.3	114.1	101.3	71.8
92.5°	286.0	269.1	195.4	91.8	17.0	22.6	58.1	83.6	89.5	83.6	58.1
95°	307.4	301.4	223.8	111.2	41.1	10.9	43.3	68.8	69.9	68.8	43.3
97.5°	335.8	330.8	253.1	142.3	72.1	14.0	31.5	55.1	55.1	55.1	31.5
100°	361.2	358.1	284.4	185.5	111.3	35.1	18.8	43.4	45.4	43.4	18.8
102.5°	404.5	389.6	317.7	226.5	152.3	64.1	19.0	28.7	31.6	28.7	19.0
105°	441.9	423.9	365.8	269.6	199.4	103.2	42.1	20.8	19.8	20.8	42.1
107.5°	478.0	466.0	409.9	313.7	249.5	148.3	76.2	41.0	29.0	41.0	76.2
110°	526.2	514.2	453.1	357.8	301.7	196.5	115.2	73.1	57.1	73.1	115.2



TEST NUMBER: P392665

CATALOG NUMBER: MWL-4-34-60-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	574.3	565.3	493.2	403.9	355.9	248.5	163.3	113.2	98.2	113.2	163.3
115°	611.4	605.4	539.3	447.1	406.0	307.7	216.5	159.3	142.3	159.3	216.5
117.5°	650.5	648.5	573.4	492.1	467.1	361.9	265.6	206.5	188.4	206.5	265.6
120°	699.7	691.6	620.4	536.2	524.2	418.0	319.7	261.5	242.6	261.5	319.7
122.5°	733.7	728.6	660.5	578.4	578.4	475.1	371.9	313.7	293.7	313.7	371.9
125°	764.8	762.7	691.6	620.4	636.5	528.3	431.0	370.8	348.8	370.8	431.0
127.5°	792.8	795.9	730.7	666.5	695.6	582.3	488.2	421.9	398.9	421.9	488.2
130°	816.9	826.9	767.8	708.7	751.7	641.5	539.3	473.1	458.1	473.1	539.3
132.5°	864.0	858.0	805.9	752.7	811.9	696.6	593.3	524.2	507.1	524.2	593.3
135°	888.1	890.1	838.9	789.9	868.0	750.8	644.5	576.3	559.3	576.3	644.5
137.5°	917.1	911.2	865.1	835.0	920.2	802.8	694.6	631.4	604.4	631.4	694.6
140°	938.2	937.2	899.1	875.1	976.3	854.0	745.7	681.6	656.5	681.6	745.7
142.5°	960.3	967.3	933.2	919.1	1032.4	908.1	800.9	731.7	706.6	731.7	800.9
145°	976.3	989.3	967.3	974.2	1085.6	968.3	848.9	778.8	752.7	778.8	848.9
147.5°	1001.4	1018.4	992.3	1013.4	1131.7	1021.4	897.1	827.9	804.8	827.9	897.1
150°	1034.4	1042.5	1027.4	1067.5	1178.8	1080.6	946.2	874.0	851.0	874.0	946.2
152.5°	1061.5	1071.5	1054.4	1126.7	1215.9	1134.6	1000.4	920.2	893.1	920.2	1000.4
155°	1089.5	1093.6	1081.6	1183.8	1256.0	1187.8	1043.4	971.3	945.3	971.3	1043.4
157.5°	1115.7	1123.6	1109.6	1226.9	1290.0	1233.9	1092.6	1022.4	999.3	1022.4	1092.6
160°	1143.7	1143.7	1151.7	1277.0	1318.1	1274.0	1144.7	1078.5	1046.5	1078.5	1144.7
162.5°	1146.7	1165.8	1208.8	1312.1	1345.2	1309.1	1200.9	1118.6	1090.6	1118.6	1200.9
165°	1190.9	1207.9	1273.0	1343.2	1366.3	1340.1	1270.0	1184.8	1151.7	1184.8	1270.0
167.5°	1236.9	1273.0	1325.1	1379.3	1387.3	1370.2	1323.1	1264.0	1233.9	1264.0	1323.1
170°	1311.2	1343.2	1369.2	1391.3	1403.3	1392.3	1356.3	1327.2	1307.1	1327.2	1356.3
172.5°	1369.3	1391.3	1401.4	1416.3	1409.3	1405.3	1386.3	1372.3	1360.3	1372.3	1386.3
175°	1406.4	1412.4	1421.4	1417.4	1423.4	1412.4	1412.4	1419.4	1376.3	1419.4	1412.4
177.5°	1419.5	1428.4	1423.4	1415.3	1416.3	1414.3	1417.4	1421.4	1413.4	1421.4	1417.4
180°	1421.4	1421.4	1421.4	1421.4	1421.4	1421.4	1421.4	1421.4	1421.4	1421.4	1421.4



TEST NUMBER: P392665

CATALOG NUMBER: MWL-4-34-60-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2528.8	2528.8	2528.8	2528.8	2528.8	2528.8
2.5°	2530.9	2532.9	2531.9	2518.1	2525.9	2519.0
5°	2519.1	2520.1	2519.1	2507.3	2515.1	2509.2
7.5°	2499.4	2499.5	2500.4	2485.6	2495.4	2489.5
10°	2469.9	2470.9	2470.9	2458.1	2464.0	2465.0
12.5°	2435.5	2433.5	2435.5	2425.6	2429.6	2428.7
15°	2393.2	2393.2	2394.2	2380.4	2383.4	2386.4
17.5°	2343.1	2344.1	2343.1	2330.3	2334.2	2334.3
20°	2288.1	2290.0	2289.0	2275.3	2275.4	2275.4
22.5°	2228.1	2227.1	2229.1	2212.4	2210.5	2202.6
25°	2161.3	2161.3	2162.3	2142.6	2128.9	2122.1
27.5°	2091.5	2091.5	2092.5	2067.9	2047.4	2037.5
30°	2009.9	2010.9	2011.9	1979.6	1948.1	1935.3
32.5°	1927.4	1928.3	1929.3	1887.2	1850.8	1841.0
35°	1834.0	1839.9	1836.9	1783.9	1746.5	1736.7
37.5°	1736.7	1748.5	1739.7	1676.8	1639.4	1633.5
40°	1629.6	1658.1	1631.5	1558.8	1533.3	1539.2
42.5°	1516.6	1551.9	1518.5	1444.8	1433.0	1444.8
45°	1396.7	1437.9	1398.6	1328.8	1327.9	1353.4
47.5°	1277.7	1322.0	1278.7	1226.6	1236.5	1261.0
50°	1154.9	1174.5	1156.9	1121.5	1147.0	1162.7
52.5°	1036.0	1029.1	1037.9	1024.2	1061.5	1081.2
55°	912.0	874.8	914.1	934.7	977.0	987.8
57.5°	794.1	745.1	796.2	842.4	896.4	905.3
60°	674.2	637.0	675.3	749.0	813.9	813.9
62.5°	566.1	550.4	567.2	654.6	723.4	726.4
65°	473.7	469.8	474.8	560.3	627.1	640.9
67.5°	394.1	402.9	394.1	469.9	535.7	552.4
70°	325.3	335.1	325.3	391.2	445.2	468.8
72.5°	265.4	281.1	266.3	314.5	361.7	400.0
75°	213.3	232.9	213.3	243.7	292.9	336.1
77.5°	165.1	186.7	165.1	190.7	243.8	297.0
80°	122.8	142.5	122.8	154.4	214.6	263.9
82.5°	88.5	98.3	88.5	137.9	204.2	250.6
85°	68.8	60.0	70.9	140.3	207.8	246.3
87.5°	58.1	19.7	72.1	149.7	223.3	251.0
90°	39.3	2.0	77.4	171.1	242.7	264.5
92.5°	22.6	17.0	91.8	195.4	269.1	286.0
95°	10.9	41.1	111.2	223.8	301.4	307.4
97.5°	14.0	72.1	142.3	253.1	330.8	335.8
100°	35.1	111.3	185.5	284.4	358.1	361.2
102.5°	64.1	152.3	226.5	317.7	389.6	404.5
105°	103.2	199.4	269.6	365.8	423.9	441.9
107.5°	148.3	249.5	313.7	409.9	466.0	478.0
110°	196.5	301.7	357.8	453.1	514.2	526.2



TEST NUMBER: P392665

CATALOG NUMBER: MWL-4-34-60-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	248.5	355.9	403.9	493.2	565.3	574.3
115°	307.7	406.0	447.1	539.3	605.4	611.4
117.5°	361.9	467.1	492.1	573.4	648.5	650.5
120°	418.0	524.2	536.2	620.4	691.6	699.7
122.5°	475.1	578.4	578.4	660.5	728.6	733.7
125°	528.3	636.5	620.4	691.6	762.7	764.8
127.5°	582.3	695.6	666.5	730.7	795.9	792.8
130°	641.5	751.7	708.7	767.8	826.9	816.9
132.5°	696.6	811.9	752.7	805.9	858.0	864.0
135°	750.8	868.0	789.9	838.9	890.1	888.1
137.5°	802.8	920.2	835.0	865.1	911.2	917.1
140°	854.0	976.3	875.1	899.1	937.2	938.2
142.5°	908.1	1032.4	919.1	933.2	967.3	960.3
145°	968.3	1085.6	974.2	967.3	989.3	976.3
147.5°	1021.4	1131.7	1013.4	992.3	1018.4	1001.4
150°	1080.6	1178.8	1067.5	1027.4	1042.5	1034.4
152.5°	1134.6	1215.9	1126.7	1054.4	1071.5	1061.5
155°	1187.8	1256.0	1183.8	1081.6	1093.6	1089.5
157.5°	1233.9	1290.0	1226.9	1109.6	1123.6	1115.7
160°	1274.0	1318.1	1277.0	1151.7	1143.7	1143.7
162.5°	1309.1	1345.2	1312.1	1208.8	1165.8	1146.7
165°	1340.1	1366.3	1343.2	1273.0	1207.9	1190.9
167.5°	1370.2	1387.3	1379.3	1325.1	1273.0	1236.9
170°	1392.3	1403.3	1391.3	1369.2	1343.2	1311.2
172.5°	1405.3	1409.3	1416.3	1401.4	1391.3	1369.3
175°	1412.4	1423.4	1417.4	1421.4	1412.4	1406.4
177.5°	1414.3	1416.3	1415.3	1423.4	1428.4	1419.5
180°	1421.4	1421.4	1421.4	1421.4	1421.4	1421.4

(END OF REPORT)