

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: P392669

Luminaire Tested: **MWL-4-34-73-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392669
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-4-34-73-UNV-L940-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9794.2 lumens
Efficiency: N/A
Efficacy: 81.7 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

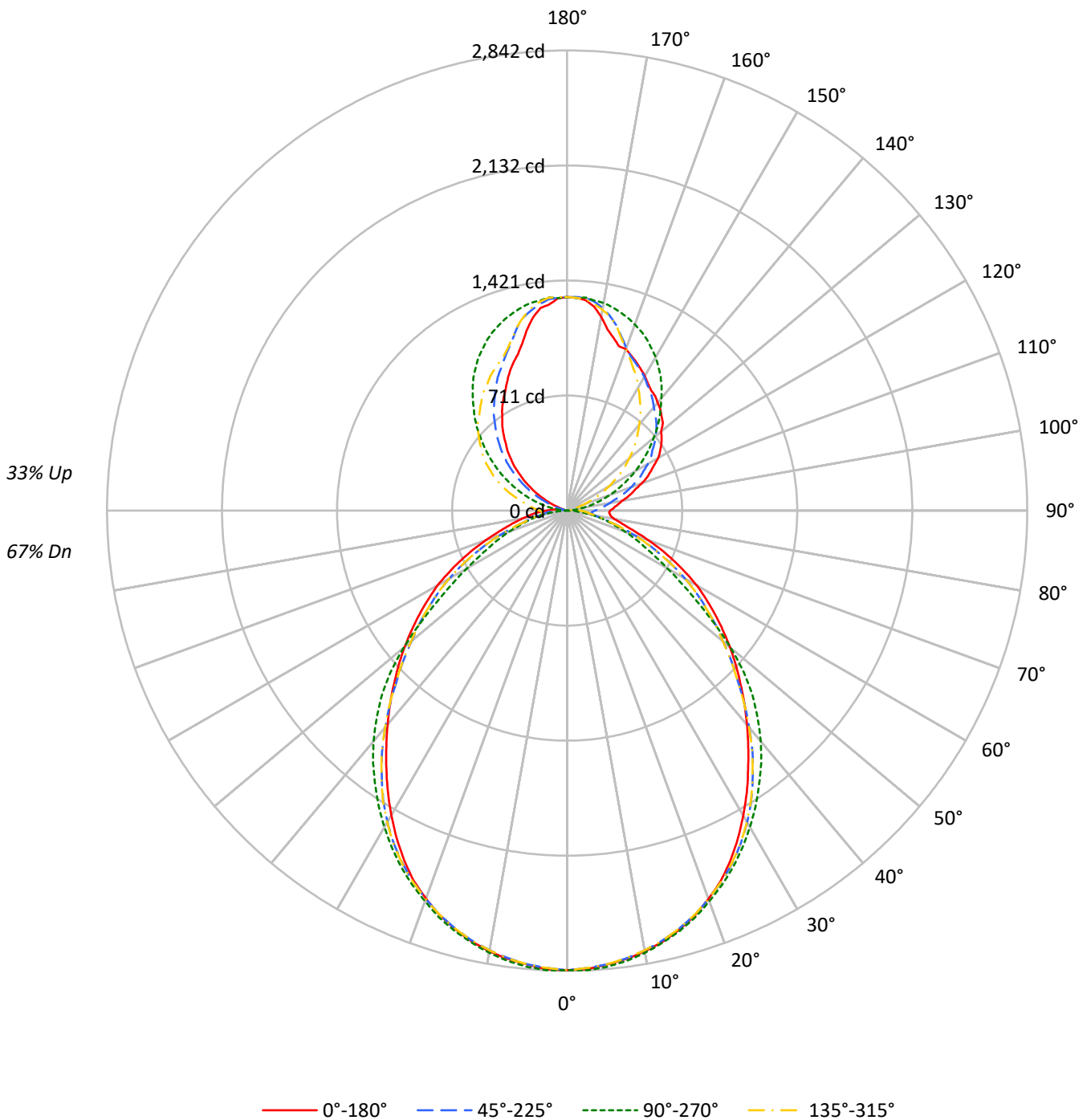
Input Watts (W): 119.887
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: MWL-4-34-73-UNV-L940-EDD

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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72	67
1	102	98	94	90	96	92	89	86	82	79	77	73	71	69	64	63	61	57
2	93	86	80	74	88	81	76	71	72	68	65	64	61	58	57	55	52	49
3	85	76	68	63	80	72	65	60	64	59	55	57	53	50	51	48	45	42
4	78	67	60	53	74	64	57	51	58	52	47	51	47	43	46	42	39	36
5	72	60	52	46	68	57	50	44	52	46	41	46	42	38	42	38	35	32
6	67	54	46	40	63	52	44	39	47	41	36	42	37	33	38	34	31	28
7	62	49	41	36	58	47	40	35	43	37	32	39	33	30	35	31	27	25
8	58	45	37	32	54	43	36	31	39	33	29	35	30	27	32	28	25	22
9	54	41	34	29	51	39	32	28	36	30	26	33	28	24	30	25	22	20
10	50	38	31	26	48	36	30	25	33	27	23	30	25	22	27	23	20	19

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	18331	18331	18331	18331
5°	18082	16861	18082	16861
10°	17796	15462	17796	15462
15°	17419	14169	17400	14169
20°	16900	12938	16881	12938
25°	16211	11796	16192	11796
30°	15300	10670	15273	10670
35°	14321	9583	14301	9583
40°	13400	8525	13373	8525
45°	12526	7402	12504	7402
50°	11727	6048	11702	6048
55°	10914	4550	10895	4550
60°	10121	3386	10110	3386
65°	9004	2550	9004	2550
70°	7825	1919	7840	1919
75°	6826	1374	6878	1374
80°	6890	884	6481	884
85°	8988	396	6945	396



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	267.6	2.7
10°-20°	754.8	7.7
20°-30°	1106.9	11.3
30°-40°	1252.9	12.8
40°-50°	1180.5	12.1
50°-60°	944.7	9.6
60°-70°	622.0	6.4
70°-80°	317.9	3.2
80°-90°	157.8	1.6
90°-100°	137.5	1.4
100°-110°	209.4	2.1
110°-120°	351.7	3.6
120°-130°	477.1	4.9
130°-140°	543.8	5.6
140°-150°	542.2	5.5
150°-160°	471.9	4.8
160°-170°	331.9	3.4
170°-180°	123.6	1.3
0°-30°	2129.2	21.7
0°-40°	3382.1	34.5
0°-60°	5507.3	56.2
0°-90°	6605.1	67.4
90°-120°	698.6	7.1
90°-150°	2261.7	23.1
90°-180°	3189.0	32.6
0°-180°	9794.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2838	2838	2838	2838	2838	
5°	2815	2828	2815	2828	2815	267
15°	2678	2687	2675	2687	2678	754
25°	2385	2427	2383	2427	2385	1095
35°	1949	2066	1946	2066	1949	1220
45°	1514	1621	1512	1621	1514	1171
55°	1114	981	1112	981	1114	997
65°	721	525	721	525	721	716
75°	380	261	383	261	380	415
85°	266	66	205	66	266	222
90°	266	2	127	2	266	147
95°	299	39	78	39	299	254
105°	412	185	21	185	412	437
115°	568	377	133	377	568	563
125°	710	590	324	590	710	634
135°	824	806	519	806	824	636
145°	905	1007	698	1007	905	571
155°	1011	1165	877	1165	1011	466
165°	1105	1268	1069	1268	1105	313
175°	1305	1320	1277	1320	1305	122
180°	1319	1319	1319	1319	1319	



TEST NUMBER: P392669

CATALOG NUMBER: MWL-4-34-73-UNV-L940-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2838.3	2838.3	2838.3	2838.3	2838.3	2838.3	2838.3	2838.3	2838.3	2838.3	2838.3
2.5°	2834.6	2834.6	2827.4	2842.9	2842.0	2842.0	2827.4	2834.6	2835.5	2834.6	2827.4
5°	2814.6	2820.0	2813.8	2829.2	2828.3	2829.2	2812.7	2820.0	2814.6	2820.0	2812.7
7.5°	2793.5	2800.8	2789.0	2807.3	2805.5	2806.3	2788.1	2799.9	2793.5	2799.9	2788.1
10°	2763.5	2766.2	2758.0	2774.4	2773.5	2773.5	2757.1	2764.4	2763.5	2764.4	2757.1
12.5°	2727.1	2726.1	2719.7	2734.3	2732.5	2734.3	2719.7	2724.3	2725.2	2724.3	2719.7
15°	2677.9	2676.9	2672.3	2686.9	2686.9	2686.0	2671.4	2675.1	2675.1	2675.1	2671.4
17.5°	2622.3	2620.4	2617.7	2633.2	2633.2	2633.2	2616.8	2619.5	2619.5	2619.5	2616.8
20°	2552.2	2554.9	2553.0	2568.5	2567.6	2567.6	2552.1	2553.0	2549.3	2553.0	2552.1
22.5°	2477.5	2480.2	2484.7	2504.7	2501.1	2503.8	2483.7	2478.3	2475.5	2478.3	2483.7
25°	2385.4	2390.9	2407.2	2428.2	2427.3	2427.3	2405.4	2388.1	2382.6	2388.1	2405.4
27.5°	2283.4	2298.0	2319.8	2346.2	2346.2	2345.3	2317.9	2295.2	2280.6	2295.2	2317.9
30°	2175.0	2190.5	2223.3	2260.5	2256.9	2258.7	2220.4	2187.6	2171.2	2187.6	2220.4
32.5°	2064.7	2080.2	2117.6	2162.1	2165.8	2160.3	2114.8	2076.5	2061.0	2076.5	2114.8
35°	1948.9	1956.2	1999.0	2066.5	2066.5	2063.7	1996.3	1953.5	1946.2	1953.5	1996.3
37.5°	1836.9	1838.7	1881.5	1952.6	1968.1	1949.8	1878.8	1836.0	1834.1	1836.0	1878.8
40°	1728.4	1719.3	1749.4	1828.7	1859.6	1826.8	1745.8	1715.7	1724.8	1715.7	1745.8
42.5°	1620.9	1610.0	1622.8	1701.1	1742.1	1699.3	1620.0	1606.4	1617.3	1606.4	1620.0
45°	1514.3	1494.3	1491.6	1569.9	1620.9	1568.1	1487.8	1491.6	1511.6	1491.6	1487.8
47.5°	1413.2	1389.5	1375.9	1436.0	1481.5	1435.1	1372.1	1386.8	1410.5	1386.8	1372.1
50°	1312.1	1289.3	1257.4	1299.3	1319.4	1297.5	1253.7	1285.6	1309.3	1285.6	1253.7
52.5°	1211.9	1194.5	1153.5	1168.1	1145.3	1166.3	1150.7	1190.8	1209.1	1190.8	1150.7
55°	1113.5	1098.0	1047.9	1028.7	981.3	1026.8	1045.0	1095.1	1111.6	1095.1	1045.0
57.5°	1016.9	1007.8	945.8	889.3	838.3	887.4	943.0	1004.9	1015.1	1004.9	943.0
60°	924.9	914.8	842.9	755.4	716.2	754.4	840.9	912.9	923.9	912.9	840.9
62.5°	821.0	816.4	735.3	637.0	611.3	635.9	733.4	814.5	820.1	814.5	733.4
65°	720.8	707.1	631.5	534.9	524.8	533.9	630.5	706.1	720.8	706.1	630.5
67.5°	624.2	604.2	534.0	446.4	449.2	446.4	533.0	603.1	624.2	603.1	533.0
70°	533.0	502.0	439.2	369.0	380.8	369.0	439.2	503.0	534.0	503.0	439.2
72.5°	448.3	410.0	352.6	300.7	315.2	299.8	352.6	411.0	450.2	411.0	352.6
75°	379.9	331.6	274.2	239.6	260.6	239.6	275.2	332.6	382.8	332.6	275.2
77.5°	331.8	276.2	214.1	185.0	210.5	185.0	215.0	273.4	328.1	273.4	215.0
80°	294.7	240.9	172.3	136.7	158.5	136.7	170.4	226.0	277.2	226.0	170.4
82.5°	272.4	223.9	154.2	98.4	111.2	98.4	143.1	190.5	237.2	190.5	143.1
85°	265.7	222.7	151.1	79.4	66.5	77.4	124.1	166.0	205.3	166.0	124.1
87.5°	259.1	228.9	156.1	76.9	24.6	63.9	103.1	139.7	163.4	139.7	103.1
90°	266.1	244.1	172.3	79.1	1.8	43.7	80.3	113.1	126.7	113.1	80.3
92.5°	283.4	266.8	192.1	90.6	16.7	26.4	64.8	94.8	101.2	94.8	64.8
95°	298.7	291.3	216.6	104.9	39.0	11.9	49.3	75.6	78.4	75.6	49.3
97.5°	322.3	317.6	239.2	131.9	67.8	12.9	33.8	62.0	62.0	62.0	33.8
100°	343.0	339.3	266.4	171.9	103.1	32.5	20.1	47.6	50.3	47.6	20.1
102.5°	380.5	365.7	295.5	210.0	141.2	59.4	18.5	31.2	34.8	31.2	18.5
105°	412.4	394.8	339.1	249.9	184.9	95.7	39.0	21.1	21.0	21.1	39.0
107.5°	444.1	433.0	380.0	291.7	231.3	138.4	70.6	38.9	27.8	38.9	70.6
110°	488.7	477.6	420.0	332.6	280.6	183.0	106.8	68.7	53.8	68.7	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°	533.4	525.0	457.2	375.4	330.8	231.3	151.4	105.9	91.9	105.9	151.4
115°	567.7	562.1	500.8	415.4	377.3	286.2	201.6	148.6	132.8	148.6	201.6
117.5°	604.0	602.1	532.4	456.2	433.0	335.5	247.1	192.3	175.6	192.3	247.1
120°	649.5	641.1	576.1	497.1	486.0	387.5	297.3	242.4	225.8	242.4	297.3
122.5°	681.0	676.4	613.3	537.1	536.2	441.3	345.7	291.7	273.1	291.7	345.7
125°	709.9	708.0	641.1	576.1	590.0	490.6	399.5	344.7	324.3	344.7	399.5
127.5°	735.9	738.7	678.3	618.8	645.8	540.7	453.5	392.0	370.7	392.0	453.5
130°	758.2	767.5	712.7	657.9	697.8	595.6	500.8	439.5	425.6	439.5	500.8
132.5°	801.9	796.3	748.0	697.8	753.6	645.8	550.9	486.9	471.0	486.9	550.9
135°	824.2	826.1	778.6	732.3	805.6	696.0	598.4	535.2	519.4	535.2	598.4
137.5°	851.1	845.6	802.9	775.0	854.0	745.2	644.9	586.3	561.2	586.3	644.9
140°	870.6	869.7	834.4	812.2	906.0	792.6	692.3	632.8	609.5	632.8	692.3
142.5°	892.1	897.6	866.0	853.0	958.0	842.8	743.4	679.2	656.9	679.2	743.4
145°	905.1	918.0	897.6	904.1	1007.3	898.5	787.9	722.9	697.8	722.9	787.9
147.5°	929.2	944.1	920.8	940.3	1050.0	947.8	832.6	767.5	747.0	767.5	832.6
150°	959.8	967.3	953.4	990.5	1093.7	1002.7	878.1	811.2	789.8	811.2	878.1
152.5°	985.0	994.3	978.4	1045.4	1128.1	1052.8	928.3	854.0	828.8	854.0	928.3
155°	1011.0	1014.7	1003.6	1098.3	1165.3	1102.1	968.2	901.4	877.2	901.4	968.2
157.5°	1035.2	1042.6	1029.5	1138.3	1196.8	1144.8	1013.8	948.7	927.3	948.7	1013.8
160°	1061.2	1061.2	1068.6	1184.8	1222.9	1182.0	1062.1	1000.8	971.1	1000.8	1062.1
162.5°	1064.0	1081.7	1121.6	1217.3	1247.9	1214.5	1114.2	1037.9	1012.0	1037.9	1114.2
165°	1104.9	1120.7	1181.1	1246.1	1268.4	1243.3	1178.2	1099.2	1068.6	1099.2	1178.2
167.5°	1146.7	1180.1	1229.3	1279.5	1287.0	1271.2	1227.5	1171.8	1143.9	1171.8	1227.5
170°	1215.5	1246.1	1270.3	1291.7	1301.9	1292.6	1258.2	1231.3	1211.8	1231.3	1258.2
172.5°	1270.3	1290.8	1300.0	1313.9	1307.4	1303.7	1286.1	1273.1	1262.0	1273.1	1286.1
175°	1304.7	1310.3	1318.6	1314.9	1320.5	1310.3	1310.3	1316.7	1276.8	1316.7	1310.3
177.5°	1316.8	1325.1	1320.5	1313.0	1313.9	1312.1	1314.9	1318.6	1311.2	1318.6	1314.9
180°	1318.6	1318.6	1318.6	1318.6	1318.6	1318.6	1318.6	1318.6	1318.6	1318.6	1318.6



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CATALOG NUMBER: MWL-4-34-73-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2838.3	2838.3	2838.3	2838.3	2838.3	2838.3
2.5°	2842.0	2842.0	2842.9	2827.4	2834.6	2834.6
5°	2829.2	2828.3	2829.2	2813.8	2820.0	2814.6
7.5°	2806.3	2805.5	2807.3	2789.0	2800.8	2793.5
10°	2773.5	2773.5	2774.4	2758.0	2766.2	2763.5
12.5°	2734.3	2732.5	2734.3	2719.7	2726.1	2727.1
15°	2686.0	2686.9	2686.9	2672.3	2676.9	2677.9
17.5°	2633.2	2633.2	2633.2	2617.7	2620.4	2622.3
20°	2567.6	2567.6	2568.5	2553.0	2554.9	2552.2
22.5°	2503.8	2501.1	2504.7	2484.7	2480.2	2477.5
25°	2427.3	2427.3	2428.2	2407.2	2390.9	2385.4
27.5°	2345.3	2346.2	2346.2	2319.8	2298.0	2283.4
30°	2258.7	2256.9	2260.5	2223.3	2190.5	2175.0
32.5°	2160.3	2165.8	2162.1	2117.6	2080.2	2064.7
35°	2063.7	2066.5	2066.5	1999.0	1956.2	1948.9
37.5°	1949.8	1968.1	1952.6	1881.5	1838.7	1836.9
40°	1826.8	1859.6	1828.7	1749.4	1719.3	1728.4
42.5°	1699.3	1742.1	1701.1	1622.8	1610.0	1620.9
45°	1568.1	1620.9	1569.9	1491.6	1494.3	1514.3
47.5°	1435.1	1481.5	1436.0	1375.9	1389.5	1413.2
50°	1297.5	1319.4	1299.3	1257.4	1289.3	1312.1
52.5°	1166.3	1145.3	1168.1	1153.5	1194.5	1211.9
55°	1026.8	981.3	1028.7	1047.9	1098.0	1113.5
57.5°	887.4	838.3	889.3	945.8	1007.8	1016.9
60°	754.4	716.2	755.4	842.9	914.8	924.9
62.5°	635.9	611.3	637.0	735.3	816.4	821.0
65°	533.9	524.8	534.9	631.5	707.1	720.8
67.5°	446.4	449.2	446.4	534.0	604.2	624.2
70°	369.0	380.8	369.0	439.2	502.0	533.0
72.5°	299.8	315.2	300.7	352.6	410.0	448.3
75°	239.6	260.6	239.6	274.2	331.6	379.9
77.5°	185.0	210.5	185.0	214.1	276.2	331.8
80°	136.7	158.5	136.7	172.3	240.9	294.7
82.5°	98.4	111.2	98.4	154.2	223.9	272.4
85°	77.4	66.5	79.4	151.1	222.7	265.7
87.5°	63.9	24.6	76.9	156.1	228.9	259.1
90°	43.7	1.8	79.1	172.3	244.1	266.1
92.5°	26.4	16.7	90.6	192.1	266.8	283.4
95°	11.9	39.0	104.9	216.6	291.3	298.7
97.5°	12.9	67.8	131.9	239.2	317.6	322.3
100°	32.5	103.1	171.9	266.4	339.3	343.0
102.5°	59.4	141.2	210.0	295.5	365.7	380.5
105°	95.7	184.9	249.9	339.1	394.8	412.4
107.5°	138.4	231.3	291.7	380.0	433.0	444.1
110°	183.0	280.6	332.6	420.0	477.6	488.7



TEST NUMBER: P392669

CATALOG NUMBER: MWL-4-34-73-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	231.3	330.8	375.4	457.2	525.0	533.4
115°	286.2	377.3	415.4	500.8	562.1	567.7
117.5°	335.5	433.0	456.2	532.4	602.1	604.0
120°	387.5	486.0	497.1	576.1	641.1	649.5
122.5°	441.3	536.2	537.1	613.3	676.4	681.0
125°	490.6	590.0	576.1	641.1	708.0	709.9
127.5°	540.7	645.8	618.8	678.3	738.7	735.9
130°	595.6	697.8	657.9	712.7	767.5	758.2
132.5°	645.8	753.6	697.8	748.0	796.3	801.9
135°	696.0	805.6	732.3	778.6	826.1	824.2
137.5°	745.2	854.0	775.0	802.9	845.6	851.1
140°	792.6	906.0	812.2	834.4	869.7	870.6
142.5°	842.8	958.0	853.0	866.0	897.6	892.1
145°	898.5	1007.3	904.1	897.6	918.0	905.1
147.5°	947.8	1050.0	940.3	920.8	944.1	929.2
150°	1002.7	1093.7	990.5	953.4	967.3	959.8
152.5°	1052.8	1128.1	1045.4	978.4	994.3	985.0
155°	1102.1	1165.3	1098.3	1003.6	1014.7	1011.0
157.5°	1144.8	1196.8	1138.3	1029.5	1042.6	1035.2
160°	1182.0	1222.9	1184.8	1068.6	1061.2	1061.2
162.5°	1214.5	1247.9	1217.3	1121.6	1081.7	1064.0
165°	1243.3	1268.4	1246.1	1181.1	1120.7	1104.9
167.5°	1271.2	1287.0	1279.5	1229.3	1180.1	1146.7
170°	1292.6	1301.9	1291.7	1270.3	1246.1	1215.5
172.5°	1303.7	1307.4	1313.9	1300.0	1290.8	1270.3
175°	1310.3	1320.5	1314.9	1318.6	1310.3	1304.7
177.5°	1312.1	1313.9	1313.0	1320.5	1325.1	1316.8
180°	1318.6	1318.6	1318.6	1318.6	1318.6	1318.6

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