

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: P392679

Luminaire Tested: **MWL-4-42-60-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392679
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-4-42-60-UNV-L830-EDD
Description: MWL 4FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9823.0 lumens
Efficiency: N/A
Efficacy: 91.0 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

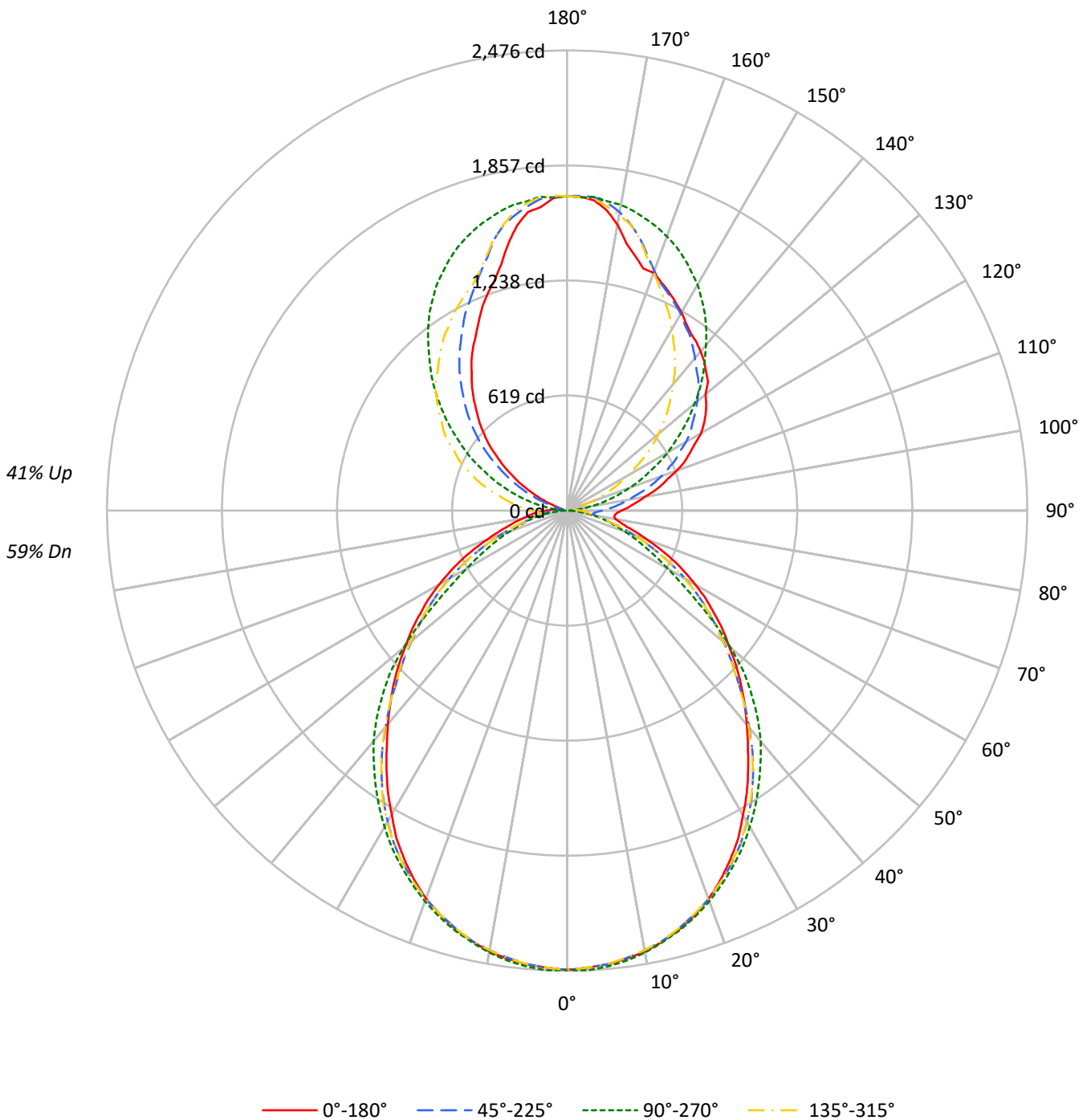
Input Watts (W): 108
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: MWL-4-42-60-UNV-L830-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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64	59
1	100	96	92	88	93	89	86	83	78	75	73	67	65	63	57	56	54	50
2	91	84	78	73	85	79	73	69	68	64	61	59	56	54	51	48	46	42
3	84	74	67	61	78	69	63	58	61	56	52	53	49	46	45	42	40	36
4	77	66	58	52	71	62	55	49	54	49	44	47	43	40	41	37	35	31
5	71	59	51	45	66	55	48	43	49	43	39	43	38	35	37	33	31	28
6	65	53	45	39	61	50	43	37	44	38	34	39	34	30	33	30	27	24
7	60	48	40	35	56	45	38	33	40	34	30	35	31	27	31	27	24	22
8	56	44	36	31	52	41	34	29	37	31	27	32	28	24	28	25	22	20
9	52	40	33	28	49	38	31	26	34	28	24	30	25	22	26	22	20	18
10	49	37	30	25	46	35	28	24	31	26	22	28	23	20	24	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	15962	15962	15962	15962
5°	15751	14684	15751	14684
10°	15513	13463	15513	13463
15°	15174	12332	15151	12332
20°	14729	11275	14706	11275
25°	14097	10263	14073	10263
30°	13308	9290	13275	9290
35°	12476	8338	12450	8338
40°	11668	7429	11630	7429
45°	10946	6419	10916	6419
50°	10163	5263	10130	5263
55°	9467	3965	9444	3965
60°	8708	2944	8694	2944
65°	7827	2232	7827	2232
70°	6730	1652	6746	1652
75°	5908	1201	5971	1201
80°	6163	777	5630	777
85°	8734	350	6109	350



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	233.0	2.4
10°-20°	657.0	6.7
20°-30°	963.5	9.8
30°-40°	1090.9	11.1
40°-50°	1027.7	10.5
50°-60°	821.9	8.4
60°-70°	539.8	5.5
70°-80°	276.3	2.8
80°-90°	146.7	1.5
90°-100°	156.5	1.6
100°-110°	265.5	2.7
110°-120°	450.3	4.6
120°-130°	611.5	6.2
130°-140°	697.2	7.1
140°-150°	695.4	7.1
150°-160°	605.3	6.2
160°-170°	425.8	4.3
170°-180°	158.6	1.6
0°-30°	1853.5	18.9
0°-40°	2944.4	30.0
0°-60°	4793.9	48.8
0°-90°	5756.9	58.6
90°-120°	872.3	8.9
90°-150°	2876.4	29.3
90°-180°	4066.0	41.4
0°-180°	9823.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2472	2472	2472	2472	2472	
5°	2452	2463	2452	2463	2452	233
15°	2333	2339	2329	2339	2333	657
25°	2074	2112	2071	2112	2074	953
35°	1698	1798	1694	1798	1698	1062
45°	1323	1406	1320	1406	1323	1020
55°	966	855	964	855	966	866
65°	627	459	627	459	627	619
75°	329	228	332	228	329	362
85°	258	59	181	59	258	213
90°	292	2	113	2	292	161
95°	352	49	69	49	352	303
105°	524	237	21	237	524	553
115°	727	483	169	483	727	722
125°	910	757	414	757	910	813
135°	1057	1033	665	1033	1057	816
145°	1162	1292	895	1292	1162	732
155°	1297	1495	1125	1495	1297	598
165°	1417	1626	1371	1626	1417	402
175°	1675	1694	1639	1694	1675	156
180°	1692	1692	1692	1692	1692	



TEST NUMBER: P392679

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2471.6	2471.6	2471.6	2471.6	2471.6	2471.6	2471.6	2471.6	2471.6	2471.6	2471.6
2.5°	2461.3	2468.5	2461.2	2474.9	2475.9	2473.7	2461.2	2468.5	2462.4	2468.5	2461.2
5°	2451.7	2457.9	2450.6	2462.2	2463.1	2462.2	2449.5	2457.9	2451.7	2457.9	2449.5
7.5°	2432.7	2438.9	2429.3	2443.9	2443.0	2442.8	2428.2	2437.8	2432.7	2437.8	2428.2
10°	2409.0	2408.2	2402.4	2414.9	2414.9	2413.8	2401.3	2405.8	2409.0	2405.8	2401.3
12.5°	2373.8	2374.6	2370.6	2380.2	2378.0	2380.2	2370.6	2372.2	2371.5	2372.2	2370.6
15°	2332.8	2329.5	2326.4	2339.9	2338.6	2338.6	2325.2	2327.1	2329.3	2327.1	2325.2
17.5°	2282.0	2281.5	2277.5	2289.7	2290.6	2289.7	2276.2	2280.3	2278.4	2280.3	2276.2
20°	2224.4	2224.1	2223.7	2236.9	2237.6	2235.7	2222.5	2221.8	2220.8	2221.8	2222.5
22.5°	2153.1	2160.7	2162.3	2178.3	2176.2	2177.1	2161.0	2158.4	2150.7	2158.4	2161.0
25°	2074.3	2081.1	2094.3	2113.0	2111.9	2111.9	2091.9	2077.5	2070.8	2077.5	2091.9
27.5°	1991.8	2001.4	2021.3	2045.2	2043.7	2043.9	2018.9	1997.8	1988.2	1997.8	2018.9
30°	1891.9	1904.4	1935.1	1966.6	1965.0	1964.2	1931.6	1900.9	1887.2	1900.9	1931.6
32.5°	1799.8	1809.4	1844.9	1886.0	1884.6	1883.6	1841.4	1804.7	1795.1	1804.7	1841.4
35°	1697.8	1707.4	1743.9	1795.8	1798.0	1792.2	1740.4	1703.9	1694.3	1703.9	1740.4
37.5°	1597.1	1602.8	1639.3	1700.7	1708.9	1697.2	1635.7	1599.3	1593.5	1599.3	1635.7
40°	1504.9	1499.1	1524.1	1594.9	1620.6	1592.5	1519.3	1494.3	1500.1	1494.3	1519.3
42.5°	1412.7	1401.2	1412.6	1484.5	1516.9	1482.1	1408.9	1396.4	1407.9	1396.4	1408.9
45°	1323.3	1298.3	1299.3	1367.4	1405.5	1365.0	1294.5	1294.7	1319.6	1294.7	1294.5
47.5°	1233.0	1209.0	1199.4	1250.0	1292.3	1248.9	1194.6	1205.4	1229.4	1205.4	1194.6
50°	1137.1	1121.7	1096.7	1131.0	1148.1	1128.6	1091.9	1116.9	1133.4	1116.9	1091.9
52.5°	1057.4	1038.2	1001.4	1014.8	1006.0	1012.4	997.9	1033.4	1053.7	1033.4	997.9
55°	965.9	955.3	914.1	893.7	855.0	891.3	910.5	951.8	963.5	951.8	910.5
57.5°	885.3	876.6	823.8	778.5	728.3	776.1	820.3	873.1	882.9	873.1	820.3
60°	795.8	795.8	732.4	660.2	622.7	659.0	730.0	793.4	794.5	793.4	730.0
62.5°	710.4	707.5	640.3	554.6	538.0	553.4	637.9	705.1	709.1	705.1	637.9
65°	626.6	613.1	547.8	464.3	459.3	463.2	546.7	612.0	626.6	612.0	546.7
67.5°	540.2	523.8	459.5	385.4	394.1	385.4	458.4	522.7	540.2	522.7	458.4
70°	458.4	435.3	382.5	318.2	327.8	318.2	382.5	436.5	459.5	436.5	382.5
72.5°	391.2	353.7	307.7	260.6	274.7	259.4	307.7	354.9	393.6	354.9	307.7
75°	328.8	286.5	238.3	208.5	227.7	208.5	239.5	287.7	332.3	287.7	239.5
77.5°	292.2	239.5	186.4	161.5	182.6	161.5	187.7	235.9	287.5	235.9	187.7
80°	263.6	214.0	151.7	120.2	139.4	120.2	149.3	194.9	240.8	194.9	149.3
82.5°	255.7	208.5	138.1	86.6	96.2	86.6	123.8	165.6	210.4	165.6	123.8
85°	258.2	218.4	145.2	70.1	58.7	67.7	110.6	145.6	180.6	145.6	110.6
87.5°	270.5	241.5	160.6	74.5	19.2	57.8	92.5	126.9	147.5	126.9	92.5
90°	292.1	268.6	189.2	84.2	2.1	38.9	71.0	100.3	113.0	100.3	71.0
92.5°	322.5	303.4	220.9	104.9	20.1	22.6	57.3	82.6	88.5	82.6	57.3
95°	351.8	344.6	257.8	130.8	48.7	11.5	42.9	67.7	68.8	67.7	42.9
97.5°	389.0	383.0	295.9	169.0	85.7	16.2	32.2	54.7	54.7	54.7	32.2
100°	422.1	419.0	336.3	220.4	132.1	41.3	19.9	44.1	46.0	44.1	19.9
102.5°	476.7	459.5	377.5	269.4	181.0	75.9	21.8	29.7	32.5	29.7	21.8
105°	523.5	502.9	435.0	320.7	237.1	122.5	49.4	22.9	20.8	22.9	49.4
107.5°	568.1	554.3	487.7	373.2	296.8	176.2	90.0	48.0	33.2	48.0	90.0
110°	625.9	611.6	538.9	425.7	358.9	233.6	136.6	86.2	67.1	86.2	136.6



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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°	683.2	672.4	586.7	480.6	423.3	295.7	193.9	134.0	116.1	134.0	193.9
115°	727.3	720.4	641.6	532.0	483.0	366.0	257.2	189.1	168.6	189.1	257.2
117.5°	773.9	771.8	682.2	585.5	555.6	430.3	315.7	245.3	223.5	245.3	315.7
120°	832.5	822.9	738.3	638.1	623.7	497.2	380.1	310.6	288.0	310.6	380.1
122.5°	873.0	867.0	786.1	688.2	688.2	565.2	442.2	372.7	348.8	372.7	442.2
125°	910.0	907.6	822.9	738.3	757.4	628.5	512.4	440.8	414.5	440.8	512.4
127.5°	943.4	947.0	869.4	793.3	827.9	693.0	580.5	501.7	474.2	501.7	580.5
130°	972.1	984.0	913.6	843.4	894.8	763.4	641.4	562.6	544.7	562.6	641.4
132.5°	1028.2	1021.1	959.0	895.7	966.4	828.8	705.8	623.5	603.2	623.5	705.8
135°	1056.9	1059.3	998.3	939.9	1033.2	893.3	766.7	685.6	665.2	685.6	766.7
137.5°	1091.5	1084.3	1029.4	993.6	1095.3	955.4	826.4	751.2	719.0	751.2	826.4
140°	1116.6	1115.4	1070.0	1041.3	1162.2	1016.3	887.4	811.0	781.1	811.0	887.4
142.5°	1142.8	1151.0	1110.6	1093.9	1229.0	1080.7	953.0	870.4	840.8	870.4	953.0
145°	1161.7	1177.2	1151.2	1159.5	1292.3	1152.4	1010.3	926.5	895.4	926.5	1010.3
147.5°	1191.6	1211.8	1181.0	1206.1	1347.2	1215.7	1067.6	985.0	957.5	985.0	1067.6
150°	1231.2	1240.7	1222.9	1270.6	1403.3	1286.1	1126.1	1040.2	1012.7	1040.2	1126.1
152.5°	1263.4	1275.4	1255.0	1341.0	1447.5	1350.5	1190.6	1095.1	1062.8	1095.1	1190.6
155°	1296.9	1301.6	1287.3	1409.1	1495.0	1413.8	1242.0	1156.0	1125.0	1156.0	1242.0
157.5°	1327.9	1337.5	1320.7	1460.5	1535.6	1468.8	1300.4	1216.8	1189.4	1216.8	1300.4
160°	1361.3	1361.3	1370.9	1520.1	1569.0	1516.5	1362.5	1283.7	1245.5	1283.7	1362.5
162.5°	1364.9	1387.6	1439.0	1561.9	1601.3	1558.3	1429.4	1331.4	1298.0	1331.4	1429.4
165°	1417.4	1437.7	1515.4	1598.9	1626.3	1595.3	1511.7	1410.2	1370.9	1410.2	1511.7
167.5°	1472.4	1515.4	1577.4	1641.7	1651.2	1630.9	1575.1	1504.6	1468.8	1504.6	1575.1
170°	1561.0	1598.9	1630.0	1656.2	1670.3	1657.4	1614.4	1579.8	1556.2	1579.8	1614.4
172.5°	1630.5	1656.2	1668.2	1685.8	1677.5	1672.7	1650.2	1633.5	1619.7	1633.5	1650.2
175°	1674.6	1681.2	1692.0	1687.0	1694.2	1681.0	1681.2	1689.7	1638.8	1689.7	1681.2
177.5°	1690.1	1700.3	1694.4	1684.6	1685.8	1683.4	1687.3	1692.0	1683.0	1692.0	1687.3
180°	1692.0	1692.0	1692.0	1692.0	1692.0	1692.0	1692.0	1692.0	1692.0	1692.0	1692.0



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CATALOG NUMBER: MWL-4-42-60-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2471.6	2471.6	2471.6	2471.6	2471.6	2471.6
2.5°	2473.7	2475.9	2474.9	2461.2	2468.5	2461.3
5°	2462.2	2463.1	2462.2	2450.6	2457.9	2451.7
7.5°	2442.8	2443.0	2443.9	2429.3	2438.9	2432.7
10°	2413.8	2414.9	2414.9	2402.4	2408.2	2409.0
12.5°	2380.2	2378.0	2380.2	2370.6	2374.6	2373.8
15°	2338.6	2338.6	2339.9	2326.4	2329.5	2332.8
17.5°	2289.7	2290.6	2289.7	2277.5	2281.5	2282.0
20°	2235.7	2237.6	2236.9	2223.7	2224.1	2224.4
22.5°	2177.1	2176.2	2178.3	2162.3	2160.7	2153.1
25°	2111.9	2111.9	2113.0	2094.3	2081.1	2074.3
27.5°	2043.9	2043.7	2045.2	2021.3	2001.4	1991.8
30°	1964.2	1965.0	1966.6	1935.1	1904.4	1891.9
32.5°	1883.6	1884.6	1886.0	1844.9	1809.4	1799.8
35°	1792.2	1798.0	1795.8	1743.9	1707.4	1697.8
37.5°	1697.2	1708.9	1700.7	1639.3	1602.8	1597.1
40°	1592.5	1620.6	1594.9	1524.1	1499.1	1504.9
42.5°	1482.1	1516.9	1484.5	1412.6	1401.2	1412.7
45°	1365.0	1405.5	1367.4	1299.3	1298.3	1323.3
47.5°	1248.9	1292.3	1250.0	1199.4	1209.0	1233.0
50°	1128.6	1148.1	1131.0	1096.7	1121.7	1137.1
52.5°	1012.4	1006.0	1014.8	1001.4	1038.2	1057.4
55°	891.3	855.0	893.7	914.1	955.3	965.9
57.5°	776.1	728.3	778.5	823.8	876.6	885.3
60°	659.0	622.7	660.2	732.4	795.8	795.8
62.5°	553.4	538.0	554.6	640.3	707.5	710.4
65°	463.2	459.3	464.3	547.8	613.1	626.6
67.5°	385.4	394.1	385.4	459.5	523.8	540.2
70°	318.2	327.8	318.2	382.5	435.3	458.4
72.5°	259.4	274.7	260.6	307.7	353.7	391.2
75°	208.5	227.7	208.5	238.3	286.5	328.8
77.5°	161.5	182.6	161.5	186.4	239.5	292.2
80°	120.2	139.4	120.2	151.7	214.0	263.6
82.5°	86.6	96.2	86.6	138.1	208.5	255.7
85°	67.7	58.7	70.1	145.2	218.4	258.2
87.5°	57.8	19.2	74.5	160.6	241.5	270.5
90°	38.9	2.1	84.2	189.2	268.6	292.1
92.5°	22.6	20.1	104.9	220.9	303.4	322.5
95°	11.5	48.7	130.8	257.8	344.6	351.8
97.5°	16.2	85.7	169.0	295.9	383.0	389.0
100°	41.3	132.1	220.4	336.3	419.0	422.1
102.5°	75.9	181.0	269.4	377.5	459.5	476.7
105°	122.5	237.1	320.7	435.0	502.9	523.5
107.5°	176.2	296.8	373.2	487.7	554.3	568.1
110°	233.6	358.9	425.7	538.9	611.6	625.9



TEST NUMBER: P392679

CATALOG NUMBER: MWL-4-42-60-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	295.7	423.3	480.6	586.7	672.4	683.2
115°	366.0	483.0	532.0	641.6	720.4	727.3
117.5°	430.3	555.6	585.5	682.2	771.8	773.9
120°	497.2	623.7	638.1	738.3	822.9	832.5
122.5°	565.2	688.2	688.2	786.1	867.0	873.0
125°	628.5	757.4	738.3	822.9	907.6	910.0
127.5°	693.0	827.9	793.3	869.4	947.0	943.4
130°	763.4	894.8	843.4	913.6	984.0	972.1
132.5°	828.8	966.4	895.7	959.0	1021.1	1028.2
135°	893.3	1033.2	939.9	998.3	1059.3	1056.9
137.5°	955.4	1095.3	993.6	1029.4	1084.3	1091.5
140°	1016.3	1162.2	1041.3	1070.0	1115.4	1116.6
142.5°	1080.7	1229.0	1093.9	1110.6	1151.0	1142.8
145°	1152.4	1292.3	1159.5	1151.2	1177.2	1161.7
147.5°	1215.7	1347.2	1206.1	1181.0	1211.8	1191.6
150°	1286.1	1403.3	1270.6	1222.9	1240.7	1231.2
152.5°	1350.5	1447.5	1341.0	1255.0	1275.4	1263.4
155°	1413.8	1495.0	1409.1	1287.3	1301.6	1296.9
157.5°	1468.8	1535.6	1460.5	1320.7	1337.5	1327.9
160°	1516.5	1569.0	1520.1	1370.9	1361.3	1361.3
162.5°	1558.3	1601.3	1561.9	1439.0	1387.6	1364.9
165°	1595.3	1626.3	1598.9	1515.4	1437.7	1417.4
167.5°	1630.9	1651.2	1641.7	1577.4	1515.4	1472.4
170°	1657.4	1670.3	1656.2	1630.0	1598.9	1561.0
172.5°	1672.7	1677.5	1685.8	1668.2	1656.2	1630.5
175°	1681.0	1694.2	1687.0	1692.0	1681.2	1674.6
177.5°	1683.4	1685.8	1684.6	1694.4	1700.3	1690.1
180°	1692.0	1692.0	1692.0	1692.0	1692.0	1692.0

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