

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: P382232

Luminaire Tested: **MWL-2-35-38-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P382232
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-25 &
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MWL-2-35-38-UNV-L830-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

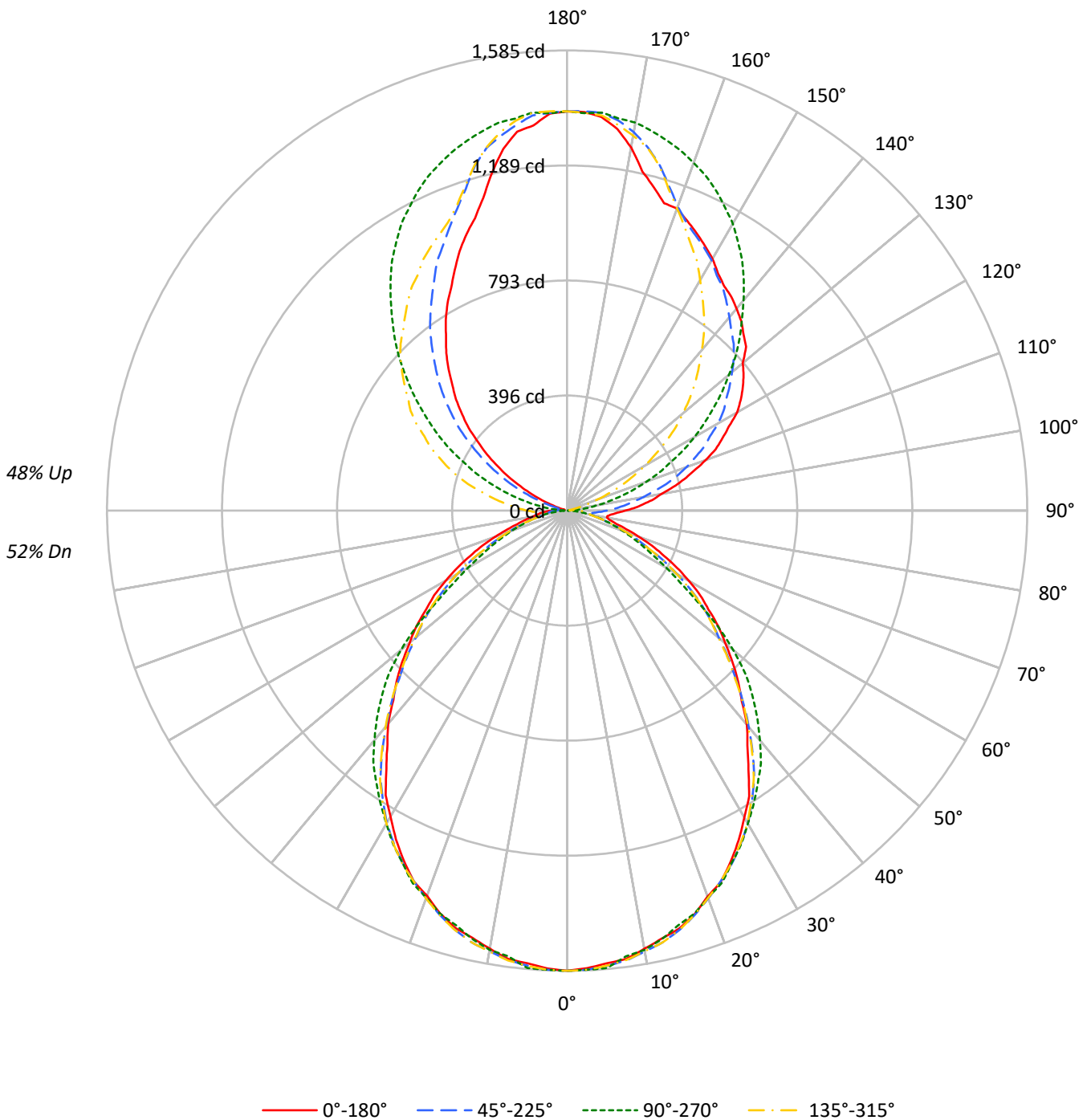
Lumens per Lamp: N/A
Luminaire Lumens: 6892.0 lumens
Efficiency: N/A
Efficacy: 81.6 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 84.5
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



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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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58	52
1	99	94	91	87	91	87	84	81	75	72	70	63	61	60	52	51	50	45
2	90	83	77	72	83	77	72	67	66	62	59	56	53	50	46	44	43	38
3	82	73	66	60	76	68	62	57	58	54	50	50	46	43	41	39	37	33
4	76	65	57	51	70	61	54	49	52	47	43	44	41	37	37	34	32	28
5	70	58	50	44	64	54	47	42	47	41	37	40	36	33	34	31	28	25
6	64	52	44	39	59	49	42	37	42	37	33	36	32	29	31	27	25	22
7	59	47	40	34	55	44	37	32	39	33	29	33	29	26	28	25	22	20
8	55	43	35	30	51	40	34	29	35	30	26	30	26	23	26	23	20	18
9	52	39	32	27	48	37	30	26	32	27	23	28	24	21	24	21	18	16
10	48	36	29	24	45	34	28	23	30	25	21	26	22	19	22	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	20473	20473	20473	20473
5°	19932	18854	19932	18854
10°	19389	17131	19389	17131
15°	18880	15592	18843	15592
20°	18079	14297	18042	14297
25°	17326	13026	17288	13026
30°	16253	11772	16203	11772
35°	14975	10620	14935	10620
40°	13823	9471	13766	9471
45°	12596	8249	12552	8249
50°	11442	6852	11396	6852
55°	10311	5085	10276	5085
60°	9186	3736	9167	3736
65°	7774	2778	7774	2778
70°	6283	2034	6305	2034
75°	4880	1428	4961	1428
80°	4743	905	4116	905
85°	6719	379	3958	379



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.0	2.2
10°-20°	419.2	6.1
20°-30°	615.0	8.9
30°-40°	697.6	10.1
40°-50°	651.1	9.4
50°-60°	511.6	7.4
60°-70°	318.7	4.6
70°-80°	154.8	2.2
80°-90°	87.4	1.3
90°-100°	114.2	1.7
100°-110°	212.1	3.1
110°-120°	365.6	5.3
120°-130°	496.7	7.2
130°-140°	566.8	8.2
140°-150°	565.2	8.2
150°-160°	492.2	7.1
160°-170°	346.0	5.0
170°-180°	128.8	1.9
0°-30°	1183.3	17.2
0°-40°	1880.8	27.3
0°-60°	3043.5	44.2
0°-90°	3604.3	52.3
90°-120°	691.9	10.0
90°-150°	2320.7	33.7
90°-180°	3288.0	47.7
0°-180°	6892.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1585	1585	1585	1585	1585	
5°	1565	1581	1565	1581	1565	149
15°	1491	1478	1488	1478	1491	419
25°	1334	1340	1331	1340	1334	612
35°	1088	1145	1085	1145	1088	682
45°	833	903	830	903	833	643
55°	594	548	592	548	594	535
65°	368	286	368	286	368	367
75°	174	135	177	135	174	195
85°	153	32	90	32	153	122
90°	200	2	54	2	200	111
95°	265	40	36	40	265	231
105°	417	192	9	192	417	440
115°	590	393	137	393	590	586
125°	739	616	336	616	739	660
135°	859	841	541	841	859	663
145°	943	1051	727	1051	943	595
155°	1055	1215	915	1215	1055	487
165°	1153	1321	1115	1321	1153	327
175°	1360	1376	1332	1376	1360	127
180°	1375	1375	1375	1375	1375	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1585.0	1585.0	1585.0	1585.0	1585.0	1585.0	1585.0	1585.0	1585.0	1585.0	1585.0
2.5°	1577.4	1574.6	1583.1	1578.5	1583.1	1577.5	1583.1	1574.6	1578.4	1574.6	1583.1
5°	1565.3	1570.0	1573.8	1571.0	1581.3	1571.0	1572.9	1570.0	1565.3	1570.0	1572.9
7.5°	1557.8	1561.6	1562.6	1558.8	1548.6	1557.9	1561.6	1560.6	1557.8	1560.6	1561.6
10°	1532.6	1544.8	1542.0	1538.3	1536.4	1537.3	1541.0	1542.9	1532.6	1542.9	1541.0
12.5°	1509.4	1512.2	1523.3	1514.9	1511.1	1514.9	1523.3	1510.2	1507.4	1510.2	1523.3
15°	1490.7	1486.9	1495.3	1485.9	1478.4	1485.0	1494.3	1485.0	1487.8	1485.0	1494.3
17.5°	1458.0	1452.4	1460.7	1459.8	1456.0	1459.8	1459.8	1451.4	1455.1	1451.4	1459.8
20°	1415.0	1423.4	1421.5	1423.3	1418.7	1422.4	1420.5	1421.5	1412.1	1421.5	1420.5
22.5°	1383.3	1381.4	1382.3	1385.1	1389.7	1384.1	1381.3	1379.5	1381.3	1379.5	1381.3
25°	1333.8	1331.0	1342.2	1339.3	1340.2	1338.4	1340.2	1328.1	1330.9	1328.1	1340.2
27.5°	1279.6	1277.8	1294.6	1297.3	1297.3	1296.3	1292.6	1274.9	1276.7	1274.9	1292.6
30°	1220.8	1225.5	1245.1	1246.9	1245.0	1245.0	1242.2	1222.6	1217.0	1222.6	1242.2
32.5°	1166.6	1162.9	1184.4	1199.3	1196.4	1197.4	1181.5	1159.1	1162.8	1159.1	1181.5
35°	1088.2	1092.9	1123.7	1142.4	1145.1	1139.5	1120.8	1090.0	1085.3	1090.0	1120.8
37.5°	1020.0	1023.8	1049.0	1086.3	1096.5	1083.4	1046.1	1020.9	1017.1	1020.9	1046.1
40°	963.1	951.9	973.3	1017.1	1033.0	1015.3	969.4	947.9	959.1	947.9	969.4
42.5°	890.2	885.6	898.5	947.1	969.5	945.2	895.6	881.6	886.3	881.6	895.6
45°	833.2	820.1	822.0	871.5	903.2	869.6	818.1	817.2	830.3	817.2	818.1
47.5°	772.5	755.7	753.8	793.9	834.1	793.0	750.0	752.8	769.6	752.8	750.0
50°	710.8	702.4	683.8	712.7	747.3	710.7	679.9	698.6	707.9	698.6	679.9
52.5°	657.6	646.4	624.9	642.7	652.0	640.7	622.0	642.6	654.7	642.6	622.0
55°	594.1	589.4	565.2	566.1	548.3	564.1	562.3	586.5	592.1	586.5	562.3
57.5°	544.6	538.1	501.7	484.8	462.3	482.9	498.8	535.2	542.6	535.2	498.8
60°	483.9	476.4	436.3	406.3	395.1	405.4	434.3	474.5	482.9	474.5	434.3
62.5°	426.9	418.5	375.6	337.2	332.5	336.3	373.6	416.6	425.9	416.6	373.6
65°	368.0	354.0	311.1	279.3	285.8	278.4	310.1	353.1	368.0	353.1	310.1
67.5°	315.7	294.3	261.6	231.7	242.0	231.7	260.6	293.3	315.7	293.3	260.6
70°	261.6	238.2	214.9	190.6	201.8	190.6	214.9	239.2	262.5	239.2	214.9
72.5°	213.9	192.5	172.9	156.0	165.3	155.0	172.9	193.4	215.9	193.4	172.9
75°	173.8	150.4	133.5	123.3	135.4	123.3	134.6	151.4	176.7	151.4	134.6
77.5°	150.7	127.2	99.9	96.2	107.4	96.2	100.9	124.3	146.8	124.3	100.9
80°	139.1	120.3	80.5	71.9	81.2	71.9	78.5	104.8	120.7	104.8	78.5
82.5°	140.1	125.7	79.0	50.4	54.2	50.4	67.4	90.8	103.2	90.8	67.4
85°	153.3	141.8	90.1	41.3	31.8	39.3	61.9	82.6	90.3	82.6	61.9
87.5°	173.2	168.3	109.8	47.3	9.3	33.8	54.5	75.2	73.4	75.2	54.5
90°	199.8	195.8	137.3	58.4	1.9	21.6	41.3	59.0	54.4	59.0	41.3
92.5°	236.0	227.2	165.7	77.2	16.4	10.4	32.8	47.8	45.9	47.8	32.8
95°	265.4	260.5	197.0	101.8	39.7	4.9	22.5	35.6	35.6	35.6	22.5
97.5°	300.6	292.9	228.5	136.7	69.8	12.6	14.2	26.3	29.1	26.3	14.2
100°	328.1	322.5	265.7	178.4	106.6	33.0	8.7	18.0	22.7	18.0	8.7
102.5°	374.1	360.6	304.5	218.1	146.4	61.1	15.5	11.5	13.4	11.5	15.5
105°	417.0	403.3	352.9	259.9	192.0	98.9	39.7	13.5	8.7	13.5	39.7
107.5°	458.6	448.9	395.6	303.5	240.5	143.4	72.7	37.7	24.2	37.7	72.7
110°	507.2	495.5	437.3	346.2	291.8	190.0	110.5	68.8	53.2	68.8	110.5



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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°	553.7	545.0	476.1	390.7	344.2	240.5	157.1	107.6	93.0	107.6	157.1
115°	590.5	584.7	520.7	432.5	392.7	297.6	208.4	153.1	136.6	153.1	208.4
117.5°	628.3	627.3	554.6	475.1	450.9	349.1	256.9	199.7	181.3	199.7	256.9
120°	675.8	668.1	600.2	518.7	507.1	404.3	309.3	252.0	233.6	252.0	309.3
122.5°	708.8	703.9	639.0	559.5	559.5	459.5	359.7	302.5	283.0	302.5	359.7
125°	738.8	736.9	668.1	600.2	615.7	511.0	415.9	357.8	336.4	357.8	415.9
127.5°	766.0	768.9	705.9	644.8	672.9	563.4	471.2	407.2	384.9	407.2	471.2
130°	790.2	799.0	741.7	685.5	727.3	620.5	520.7	456.6	443.0	456.6	520.7
132.5°	835.8	830.0	778.6	728.2	786.4	673.9	573.0	507.1	490.5	507.1	573.0
135°	859.1	861.0	811.6	764.1	840.6	726.2	623.4	557.5	541.0	557.5	623.4
137.5°	887.2	881.4	836.8	807.7	891.1	776.7	671.9	610.8	584.7	610.8	671.9
140°	907.6	906.6	869.8	846.5	945.4	826.2	721.4	659.3	635.1	659.3	721.4
142.5°	928.9	934.8	902.7	889.2	999.7	878.5	774.7	706.8	683.6	706.8	774.7
145°	943.4	956.1	935.7	942.5	1051.1	936.6	821.3	752.4	727.2	752.4	821.3
147.5°	967.7	984.2	960.0	980.3	1095.8	988.1	867.8	799.9	777.6	799.9	867.8
150°	1001.6	1009.4	994.8	1032.7	1141.3	1045.3	916.3	846.4	824.1	846.4	916.3
152.5°	1027.8	1037.5	1021.1	1089.9	1177.2	1097.6	968.7	891.1	864.9	891.1	968.7
155°	1054.9	1058.9	1046.3	1145.2	1215.0	1149.1	1009.4	940.6	915.3	940.6	1009.4
157.5°	1080.2	1087.9	1073.4	1186.9	1248.0	1193.6	1056.9	990.0	967.6	990.0	1056.9
160°	1107.3	1107.3	1114.2	1235.4	1274.2	1232.5	1107.3	1044.3	1013.2	1044.3	1107.3
162.5°	1110.2	1127.7	1169.4	1269.3	1300.4	1266.4	1161.7	1082.1	1055.9	1082.1	1161.7
165°	1152.9	1168.4	1231.4	1299.3	1320.7	1296.4	1228.5	1146.2	1115.1	1146.2	1228.5
167.5°	1196.6	1231.4	1281.9	1332.4	1340.1	1323.6	1280.0	1222.8	1193.6	1222.8	1280.0
170°	1269.3	1299.3	1323.6	1345.9	1356.6	1346.9	1311.0	1283.8	1265.4	1283.8	1311.0
172.5°	1325.6	1345.9	1354.7	1369.2	1362.4	1358.5	1340.1	1327.5	1316.9	1327.5	1340.1
175°	1360.5	1365.4	1375.0	1370.2	1376.0	1365.4	1366.3	1372.2	1331.5	1372.2	1366.3
177.5°	1374.0	1380.9	1376.9	1369.2	1370.1	1368.2	1371.1	1374.0	1368.2	1374.0	1371.1
180°	1375.0	1375.0	1375.0	1375.0	1375.0	1375.0	1375.0	1375.0	1375.0	1375.0	1375.0



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1585.0	1585.0	1585.0	1585.0	1585.0	1585.0
2.5°	1577.5	1583.1	1578.5	1583.1	1574.6	1577.4
5°	1571.0	1581.3	1571.0	1573.8	1570.0	1565.3
7.5°	1557.9	1548.6	1558.8	1562.6	1561.6	1557.8
10°	1537.3	1536.4	1538.3	1542.0	1544.8	1532.6
12.5°	1514.9	1511.1	1514.9	1523.3	1512.2	1509.4
15°	1485.0	1478.4	1485.9	1495.3	1486.9	1490.7
17.5°	1459.8	1456.0	1459.8	1460.7	1452.4	1458.0
20°	1422.4	1418.7	1423.3	1421.5	1423.4	1415.0
22.5°	1384.1	1389.7	1385.1	1382.3	1381.4	1383.3
25°	1338.4	1340.2	1339.3	1342.2	1331.0	1333.8
27.5°	1296.3	1297.3	1297.3	1294.6	1277.8	1279.6
30°	1245.0	1245.0	1246.9	1245.1	1225.5	1220.8
32.5°	1197.4	1196.4	1199.3	1184.4	1162.9	1166.6
35°	1139.5	1145.1	1142.4	1123.7	1092.9	1088.2
37.5°	1083.4	1096.5	1086.3	1049.0	1023.8	1020.0
40°	1015.3	1033.0	1017.1	973.3	951.9	963.1
42.5°	945.2	969.5	947.1	898.5	885.6	890.2
45°	869.6	903.2	871.5	822.0	820.1	833.2
47.5°	793.0	834.1	793.9	753.8	755.7	772.5
50°	710.7	747.3	712.7	683.8	702.4	710.8
52.5°	640.7	652.0	642.7	624.9	646.4	657.6
55°	564.1	548.3	566.1	565.2	589.4	594.1
57.5°	482.9	462.3	484.8	501.7	538.1	544.6
60°	405.4	395.1	406.3	436.3	476.4	483.9
62.5°	336.3	332.5	337.2	375.6	418.5	426.9
65°	278.4	285.8	279.3	311.1	354.0	368.0
67.5°	231.7	242.0	231.7	261.6	294.3	315.7
70°	190.6	201.8	190.6	214.9	238.2	261.6
72.5°	155.0	165.3	156.0	172.9	192.5	213.9
75°	123.3	135.4	123.3	133.5	150.4	173.8
77.5°	96.2	107.4	96.2	99.9	127.2	150.7
80°	71.9	81.2	71.9	80.5	120.3	139.1
82.5°	50.4	54.2	50.4	79.0	125.7	140.1
85°	39.3	31.8	41.3	90.1	141.8	153.3
87.5°	33.8	9.3	47.3	109.8	168.3	173.2
90°	21.6	1.9	58.4	137.3	195.8	199.8
92.5°	10.4	16.4	77.2	165.7	227.2	236.0
95°	4.9	39.7	101.8	197.0	260.5	265.4
97.5°	12.6	69.8	136.7	228.5	292.9	300.6
100°	33.0	106.6	178.4	265.7	322.5	328.1
102.5°	61.1	146.4	218.1	304.5	360.6	374.1
105°	98.9	192.0	259.9	352.9	403.3	417.0
107.5°	143.4	240.5	303.5	395.6	448.9	458.6
110°	190.0	291.8	346.2	437.3	495.5	507.2



TEST NUMBER: P382232

CATALOG NUMBER: MWL-2-35-38-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	240.5	344.2	390.7	476.1	545.0	553.7
115°	297.6	392.7	432.5	520.7	584.7	590.5
117.5°	349.1	450.9	475.1	554.6	627.3	628.3
120°	404.3	507.1	518.7	600.2	668.1	675.8
122.5°	459.5	559.5	559.5	639.0	703.9	708.8
125°	511.0	615.7	600.2	668.1	736.9	738.8
127.5°	563.4	672.9	644.8	705.9	768.9	766.0
130°	620.5	727.3	685.5	741.7	799.0	790.2
132.5°	673.9	786.4	728.2	778.6	830.0	835.8
135°	726.2	840.6	764.1	811.6	861.0	859.1
137.5°	776.7	891.1	807.7	836.8	881.4	887.2
140°	826.2	945.4	846.5	869.8	906.6	907.6
142.5°	878.5	999.7	889.2	902.7	934.8	928.9
145°	936.6	1051.1	942.5	935.7	956.1	943.4
147.5°	988.1	1095.8	980.3	960.0	984.2	967.7
150°	1045.3	1141.3	1032.7	994.8	1009.4	1001.6
152.5°	1097.6	1177.2	1089.9	1021.1	1037.5	1027.8
155°	1149.1	1215.0	1145.2	1046.3	1058.9	1054.9
157.5°	1193.6	1248.0	1186.9	1073.4	1087.9	1080.2
160°	1232.5	1274.2	1235.4	1114.2	1107.3	1107.3
162.5°	1266.4	1300.4	1269.3	1169.4	1127.7	1110.2
165°	1296.4	1320.7	1299.3	1231.4	1168.4	1152.9
167.5°	1323.6	1340.1	1332.4	1281.9	1231.4	1196.6
170°	1346.9	1356.6	1345.9	1323.6	1299.3	1269.3
172.5°	1358.5	1362.4	1369.2	1354.7	1345.9	1325.6
175°	1365.4	1376.0	1370.2	1375.0	1365.4	1360.5
177.5°	1368.2	1370.1	1369.2	1376.9	1380.9	1374.0
180°	1375.0	1375.0	1375.0	1375.0	1375.0	1375.0

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