

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: P382274

Luminaire Tested: **MWL-2-28-38-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P382274
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-2-28-38-UNV-L830-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

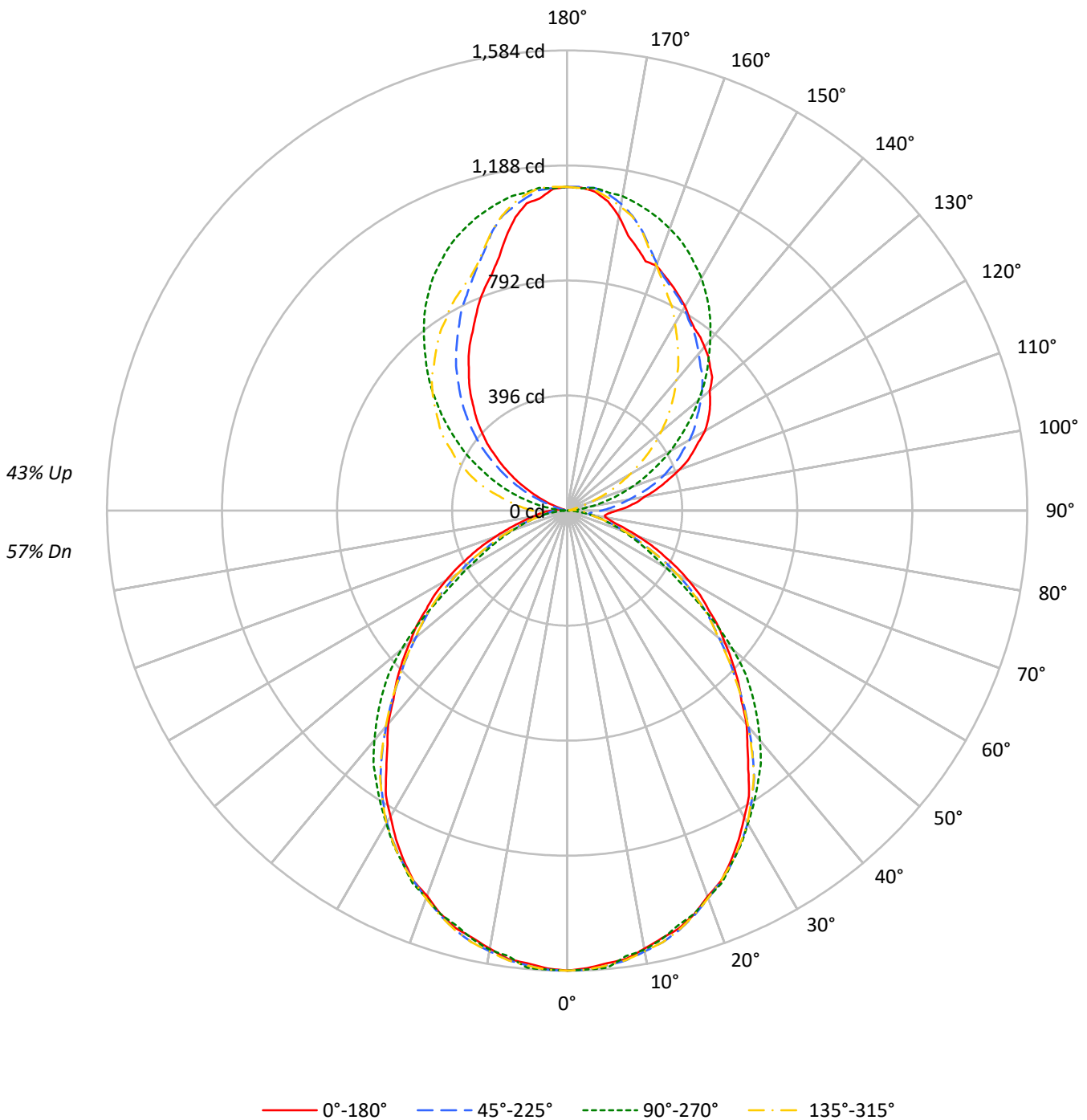
Lumens per Lamp: N/A
Luminaire Lumens: 6264.0 lumens
Efficiency: N/A
Efficacy: 83.4 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 75.1
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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63	57
1	100	96	92	88	93	89	86	83	77	75	73	66	64	63	56	55	54	49
2	91	84	78	73	85	79	73	69	68	64	61	59	56	53	50	48	46	42
3	84	74	67	61	78	70	63	58	61	56	52	52	49	46	45	42	40	36
4	77	66	58	52	71	62	55	50	54	49	45	47	43	39	40	37	35	31
5	71	59	51	45	66	56	48	43	49	43	39	42	38	35	36	33	30	27
6	65	53	45	39	61	50	43	38	44	38	34	38	34	30	33	30	27	24
7	60	48	40	35	56	45	38	33	40	34	30	35	31	27	30	27	24	22
8	56	44	36	31	52	41	34	30	37	31	27	32	28	24	28	24	22	19
9	52	40	33	28	49	38	31	27	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°	20455	20455	20455	20455
5°	19921	18835	19921	18835
10°	19374	17115	19374	17115
15°	18859	15581	18828	15581
20°	18059	14288	18027	14288
25°	17305	13018	17275	13018
30°	16232	11765	16191	11765
35°	14955	10612	14924	10612
40°	13803	9462	13757	9462
45°	12578	8240	12543	8240
50°	11425	6844	11386	6844
55°	10294	5080	10266	5080
60°	9171	3730	9156	3730
65°	7761	2775	7761	2775
70°	6274	2030	6290	2030
75°	4868	1426	4933	1426
80°	4576	904	4064	904
85°	6057	377	3818	377



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	148.9	2.4
10°-20°	418.9	6.7
20°-30°	614.5	9.8
30°-40°	696.9	11.1
40°-50°	650.4	10.4
50°-60°	510.9	8.2
60°-70°	318.2	5.1
70°-80°	154.2	2.5
80°-90°	82.3	1.3
90°-100°	96.3	1.5
100°-110°	172.2	2.7
110°-120°	296.4	4.7
120°-130°	402.7	6.4
130°-140°	459.4	7.3
140°-150°	458.1	7.3
150°-160°	398.9	6.4
160°-170°	280.3	4.5
170°-180°	104.4	1.7
0°-30°	1182.3	18.9
0°-40°	1879.1	30.0
0°-60°	3040.5	48.5
0°-90°	3595.2	57.4
90°-120°	564.9	9.0
90°-150°	1885.2	30.1
90°-180°	2669.0	42.6
0°-180°	6264.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1584	1584	1584	1584	1584	
5°	1564	1580	1564	1580	1564	149
15°	1489	1477	1487	1477	1489	418
25°	1332	1339	1330	1339	1332	612
35°	1087	1144	1084	1144	1087	682
45°	832	902	830	902	832	642
55°	593	548	592	548	593	534
65°	367	286	367	286	367	366
75°	173	135	176	135	173	193
85°	138	32	87	32	138	112
90°	171	2	53	2	171	95
95°	221	32	35	32	221	191
105°	338	156	7	156	338	357
115°	479	318	111	318	479	475
125°	599	499	273	499	599	535
135°	696	681	439	681	696	537
145°	765	852	590	852	765	482
155°	855	984	742	984	855	394
165°	934	1070	904	1070	934	265
175°	1102	1115	1078	1115	1102	103
180°	1114	1114	1114	1114	1114	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1583.6	1583.6	1583.6	1583.6	1583.6	1583.6	1583.6	1583.6	1583.6	1583.6	1583.6
2.5°	1576.6	1573.4	1581.5	1576.8	1581.4	1575.9	1581.5	1573.4	1577.3	1573.4	1581.5
5°	1564.4	1568.7	1572.2	1569.4	1579.7	1569.4	1571.4	1568.7	1564.4	1568.7	1571.4
7.5°	1556.8	1560.2	1561.2	1557.2	1547.0	1556.5	1560.3	1559.4	1556.8	1559.4	1560.3
10°	1531.4	1543.4	1540.6	1536.9	1535.0	1536.0	1539.8	1541.8	1531.4	1541.8	1539.8
12.5°	1507.8	1510.7	1522.0	1513.6	1510.1	1513.6	1522.0	1509.2	1506.2	1509.2	1522.0
15°	1489.0	1485.5	1494.0	1484.7	1477.4	1483.9	1493.3	1483.9	1486.6	1483.9	1493.3
17.5°	1456.3	1451.0	1459.5	1458.7	1455.0	1458.7	1458.7	1450.1	1453.9	1450.1	1458.7
20°	1413.4	1421.8	1420.3	1422.3	1417.8	1421.6	1419.5	1420.3	1410.9	1420.3	1419.5
22.5°	1381.7	1379.8	1381.0	1384.0	1388.9	1383.3	1380.3	1378.2	1380.1	1378.2	1380.3
25°	1332.2	1329.4	1340.8	1338.3	1339.4	1337.5	1339.2	1327.1	1329.9	1327.1	1339.2
27.5°	1278.0	1276.2	1293.2	1296.1	1296.4	1295.3	1291.6	1273.8	1275.7	1273.8	1291.6
30°	1219.2	1223.9	1243.5	1245.6	1244.2	1244.0	1241.2	1221.6	1216.1	1221.6	1241.2
32.5°	1165.1	1161.3	1182.8	1197.9	1195.4	1196.3	1180.5	1158.2	1162.0	1158.2	1180.5
35°	1086.8	1091.5	1122.3	1141.0	1144.2	1138.6	1120.0	1089.1	1084.5	1089.1	1120.0
37.5°	1018.6	1022.4	1047.6	1084.9	1095.5	1082.6	1045.3	1020.0	1016.3	1020.0	1045.3
40°	961.7	950.5	972.0	1015.9	1032.0	1014.4	968.8	947.3	958.5	947.3	968.8
42.5°	888.9	884.2	897.4	945.9	968.5	944.4	895.0	881.0	885.7	881.0	895.0
45°	832.0	818.9	820.8	870.3	902.2	868.8	817.7	816.6	829.7	816.6	817.7
47.5°	771.3	754.5	752.6	793.0	833.1	792.2	749.5	752.2	769.0	752.2	749.5
50°	709.7	701.3	682.6	711.7	746.5	710.1	679.5	698.2	707.3	698.2	679.5
52.5°	656.4	645.2	623.9	641.7	651.2	640.1	621.6	642.2	654.1	642.2	621.6
55°	593.1	588.5	564.2	565.3	547.7	563.7	561.8	586.1	591.5	586.1	561.8
57.5°	543.6	537.1	500.7	484.1	461.7	482.5	498.4	534.8	542.1	534.8	498.4
60°	483.1	475.7	435.5	405.7	394.5	405.0	433.9	474.1	482.3	474.1	433.9
62.5°	426.2	417.8	374.8	336.6	332.1	335.9	373.2	416.2	425.3	416.2	373.2
65°	367.4	353.4	310.5	278.7	285.5	278.0	309.7	352.7	367.4	352.7	309.7
67.5°	315.1	293.7	261.0	231.3	241.6	231.3	260.2	292.9	315.1	292.9	260.2
70°	261.2	237.8	214.5	190.2	201.4	190.2	214.5	238.6	261.9	238.6	214.5
72.5°	213.6	192.1	172.5	155.7	165.1	154.8	172.5	192.8	215.1	192.8	172.5
75°	173.4	150.1	133.3	123.1	135.2	123.1	134.2	150.8	175.7	150.8	134.2
77.5°	148.8	126.1	99.7	96.0	107.2	96.0	100.6	123.7	145.7	123.7	100.6
80°	134.2	116.5	79.7	71.7	81.1	71.7	78.2	104.0	119.2	104.0	78.2
82.5°	130.6	117.9	76.1	50.2	54.0	50.2	66.7	89.6	100.8	89.6	66.7
85°	138.2	128.4	83.1	40.5	31.6	38.9	60.3	80.6	87.1	80.6	60.3
87.5°	151.5	148.2	97.4	43.9	9.3	32.9	52.7	72.7	70.6	72.7	52.7
90°	170.9	168.6	118.2	51.0	1.7	21.2	40.5	57.9	53.1	57.9	40.5
92.5°	198.9	192.3	139.8	64.1	13.5	10.0	32.2	47.1	45.0	47.1	32.2
95°	221.1	217.4	163.3	82.6	32.3	4.1	21.9	35.2	35.0	35.2	21.9
97.5°	248.2	241.5	186.7	110.8	56.7	10.4	13.1	25.6	28.4	25.6	13.1
100°	268.6	263.1	215.4	144.6	86.6	26.9	7.4	16.5	21.2	16.5	7.4
102.5°	303.9	292.7	246.7	176.9	118.7	49.6	12.7	10.0	11.9	10.0	12.7
105°	337.9	326.9	286.1	210.6	155.7	80.2	32.5	11.3	7.4	11.3	32.5
107.5°	371.7	363.9	320.7	246.0	194.9	116.5	59.2	30.9	19.9	30.9	59.2
110°	411.0	401.5	354.5	280.6	236.6	154.2	89.8	56.0	43.5	56.0	89.8



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CATALOG NUMBER: MWL-2-28-38-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	448.7	441.6	385.8	316.7	279.0	195.1	127.5	87.5	75.6	87.5	127.5
115°	478.6	473.8	422.0	350.5	318.3	241.4	169.1	124.4	111.1	124.4	169.1
117.5°	509.3	508.5	449.6	385.1	365.4	282.9	208.5	162.2	147.3	162.2	208.5
120°	547.7	541.5	486.5	420.6	411.1	327.8	250.9	204.6	189.6	204.6	250.9
122.5°	574.5	570.5	517.9	453.5	453.5	372.7	291.8	245.4	229.7	245.4	291.8
125°	598.8	597.2	541.5	486.5	499.1	414.2	337.3	290.2	272.9	290.2	337.3
127.5°	620.8	623.1	572.1	522.6	545.4	456.7	382.1	330.3	312.2	330.3	382.1
130°	640.6	647.5	601.2	555.6	589.4	503.0	422.1	370.2	359.4	370.2	422.1
132.5°	677.4	672.8	630.9	590.3	637.4	546.3	464.5	411.2	397.9	411.2	464.5
135°	696.3	697.9	657.8	619.4	681.4	588.7	505.4	452.1	438.8	452.1	505.4
137.5°	719.1	714.3	678.2	654.7	722.2	629.5	544.8	495.3	474.1	495.3	544.8
140°	735.5	734.8	704.9	686.1	766.2	669.6	584.8	534.6	514.9	534.6	584.8
142.5°	752.8	757.6	731.6	720.7	810.1	712.0	628.0	573.1	554.2	573.1	628.0
145°	764.6	774.8	758.3	763.8	851.8	759.2	665.7	609.9	589.5	609.9	665.7
147.5°	784.3	797.6	777.9	794.5	887.9	800.7	703.4	648.4	630.4	648.4	703.4
150°	811.9	818.2	806.4	836.8	924.8	847.0	742.8	686.2	668.2	686.2	742.8
152.5°	833.1	841.0	827.6	883.2	953.8	889.5	785.2	722.4	701.2	722.4	785.2
155°	855.1	858.2	847.9	928.0	984.5	931.1	818.0	762.4	742.0	762.4	818.0
157.5°	875.5	881.8	869.8	961.7	1011.2	967.2	856.5	802.5	784.4	802.5	856.5
160°	897.4	897.4	902.8	1001.0	1032.2	998.6	897.4	846.5	821.3	846.5	897.4
162.5°	899.8	913.8	947.6	1028.5	1053.4	1026.1	941.3	876.9	855.9	876.9	941.3
165°	934.3	946.7	997.8	1052.8	1069.9	1050.4	995.5	928.7	903.7	928.7	995.5
167.5°	969.5	997.8	1038.6	1079.3	1085.6	1072.2	1037.0	990.7	967.2	990.7	1037.0
170°	1028.5	1052.8	1072.2	1090.5	1099.1	1091.3	1062.1	1040.2	1025.3	1040.2	1062.1
172.5°	1073.8	1090.5	1097.4	1109.3	1103.8	1100.7	1085.6	1075.6	1066.7	1075.6	1085.6
175°	1101.9	1106.0	1114.1	1110.2	1114.8	1106.1	1107.0	1111.6	1078.4	1111.6	1107.0
177.5°	1113.1	1118.6	1115.6	1109.5	1110.3	1108.7	1110.9	1113.1	1108.4	1113.1	1110.9
180°	1114.1	1114.1	1114.1	1114.1	1114.1	1114.1	1114.1	1114.1	1114.1	1114.1	1114.1



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CATALOG NUMBER: MWL-2-28-38-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1583.6	1583.6	1583.6	1583.6	1583.6	1583.6
2.5°	1575.9	1581.4	1576.8	1581.5	1573.4	1576.6
5°	1569.4	1579.7	1569.4	1572.2	1568.7	1564.4
7.5°	1556.5	1547.0	1557.2	1561.2	1560.2	1556.8
10°	1536.0	1535.0	1536.9	1540.6	1543.4	1531.4
12.5°	1513.6	1510.1	1513.6	1522.0	1510.7	1507.8
15°	1483.9	1477.4	1484.7	1494.0	1485.5	1489.0
17.5°	1458.7	1455.0	1458.7	1459.5	1451.0	1456.3
20°	1421.6	1417.8	1422.3	1420.3	1421.8	1413.4
22.5°	1383.3	1388.9	1384.0	1381.0	1379.8	1381.7
25°	1337.5	1339.4	1338.3	1340.8	1329.4	1332.2
27.5°	1295.3	1296.4	1296.1	1293.2	1276.2	1278.0
30°	1244.0	1244.2	1245.6	1243.5	1223.9	1219.2
32.5°	1196.3	1195.4	1197.9	1182.8	1161.3	1165.1
35°	1138.6	1144.2	1141.0	1122.3	1091.5	1086.8
37.5°	1082.6	1095.5	1084.9	1047.6	1022.4	1018.6
40°	1014.4	1032.0	1015.9	972.0	950.5	961.7
42.5°	944.4	968.5	945.9	897.4	884.2	888.9
45°	868.8	902.2	870.3	820.8	818.9	832.0
47.5°	792.2	833.1	793.0	752.6	754.5	771.3
50°	710.1	746.5	711.7	682.6	701.3	709.7
52.5°	640.1	651.2	641.7	623.9	645.2	656.4
55°	563.7	547.7	565.3	564.2	588.5	593.1
57.5°	482.5	461.7	484.1	500.7	537.1	543.6
60°	405.0	394.5	405.7	435.5	475.7	483.1
62.5°	335.9	332.1	336.6	374.8	417.8	426.2
65°	278.0	285.5	278.7	310.5	353.4	367.4
67.5°	231.3	241.6	231.3	261.0	293.7	315.1
70°	190.2	201.4	190.2	214.5	237.8	261.2
72.5°	154.8	165.1	155.7	172.5	192.1	213.6
75°	123.1	135.2	123.1	133.3	150.1	173.4
77.5°	96.0	107.2	96.0	99.7	126.1	148.8
80°	71.7	81.1	71.7	79.7	116.5	134.2
82.5°	50.2	54.0	50.2	76.1	117.9	130.6
85°	38.9	31.6	40.5	83.1	128.4	138.2
87.5°	32.9	9.3	43.9	97.4	148.2	151.5
90°	21.2	1.7	51.0	118.2	168.6	170.9
92.5°	10.0	13.5	64.1	139.8	192.3	198.9
95°	4.1	32.3	82.6	163.3	217.4	221.1
97.5°	10.4	56.7	110.8	186.7	241.5	248.2
100°	26.9	86.6	144.6	215.4	263.1	268.6
102.5°	49.6	118.7	176.9	246.7	292.7	303.9
105°	80.2	155.7	210.6	286.1	326.9	337.9
107.5°	116.5	194.9	246.0	320.7	363.9	371.7
110°	154.2	236.6	280.6	354.5	401.5	411.0



TEST NUMBER: P382274

CATALOG NUMBER: MWL-2-28-38-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	195.1	279.0	316.7	385.8	441.6	448.7
115°	241.4	318.3	350.5	422.0	473.8	478.6
117.5°	282.9	365.4	385.1	449.6	508.5	509.3
120°	327.8	411.1	420.6	486.5	541.5	547.7
122.5°	372.7	453.5	453.5	517.9	570.5	574.5
125°	414.2	499.1	486.5	541.5	597.2	598.8
127.5°	456.7	545.4	522.6	572.1	623.1	620.8
130°	503.0	589.4	555.6	601.2	647.5	640.6
132.5°	546.3	637.4	590.3	630.9	672.8	677.4
135°	588.7	681.4	619.4	657.8	697.9	696.3
137.5°	629.5	722.2	654.7	678.2	714.3	719.1
140°	669.6	766.2	686.1	704.9	734.8	735.5
142.5°	712.0	810.1	720.7	731.6	757.6	752.8
145°	759.2	851.8	763.8	758.3	774.8	764.6
147.5°	800.7	887.9	794.5	777.9	797.6	784.3
150°	847.0	924.8	836.8	806.4	818.2	811.9
152.5°	889.5	953.8	883.2	827.6	841.0	833.1
155°	931.1	984.5	928.0	847.9	858.2	855.1
157.5°	967.2	1011.2	961.7	869.8	881.8	875.5
160°	998.6	1032.2	1001.0	902.8	897.4	897.4
162.5°	1026.1	1053.4	1028.5	947.6	913.8	899.8
165°	1050.4	1069.9	1052.8	997.8	946.7	934.3
167.5°	1072.2	1085.6	1079.3	1038.6	997.8	969.5
170°	1091.3	1099.1	1090.5	1072.2	1052.8	1028.5
172.5°	1100.7	1103.8	1109.3	1097.4	1090.5	1073.8
175°	1106.1	1114.8	1110.2	1114.1	1106.0	1101.9
177.5°	1108.7	1110.3	1109.5	1115.6	1118.6	1113.1
180°	1114.1	1114.1	1114.1	1114.1	1114.1	1114.1

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