

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: P392529

Luminaire Tested: **MWL-2-28-38-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392529
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-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

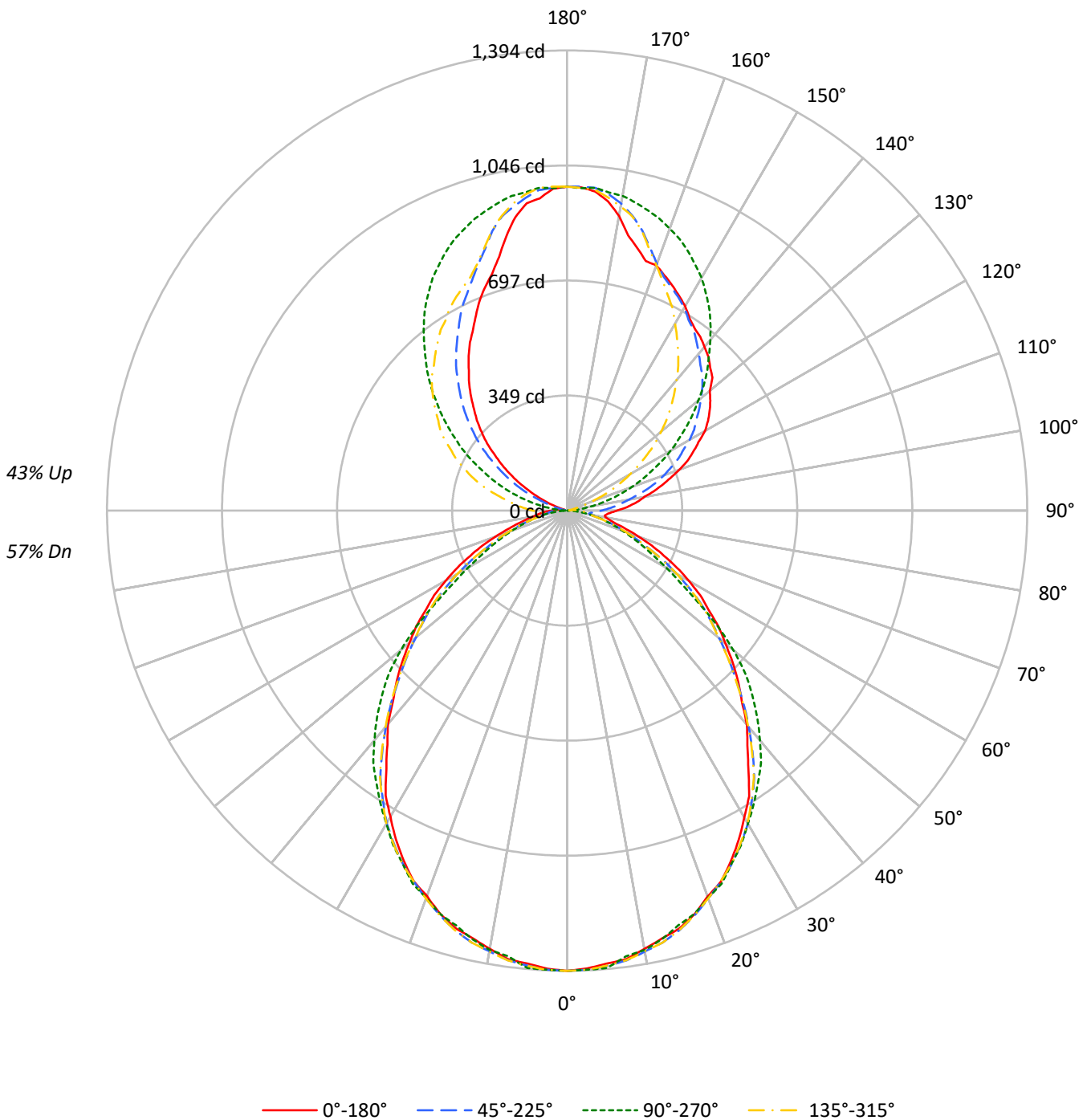
Lumens per Lamp: N/A
Luminaire Lumens: 5515.5 lumens
Efficiency: N/A
Efficacy: 72.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 75.851
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°	18011	18011	18011	18011
5°	17541	16584	17541	16584
10°	17059	15070	17059	15070
15°	16606	13720	16579	13720
20°	15901	12581	15873	12581
25°	15237	11462	15211	11462
30°	14292	10359	14256	10359
35°	13168	9344	13140	9344
40°	12154	8331	12114	8331
45°	11075	7256	11045	7256
50°	10060	6026	10026	6026
55°	9063	4472	9039	4472
60°	8076	3285	8062	3285
65°	6834	2444	6834	2444
70°	5524	1787	5539	1787
75°	4287	1255	4343	1255
80°	4030	796	3580	796
85°	5334	331	3362	331



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	131.1	2.4
10°-20°	368.8	6.7
20°-30°	541.1	9.8
30°-40°	613.6	11.1
40°-50°	572.7	10.4
50°-60°	449.9	8.2
60°-70°	280.2	5.1
70°-80°	135.8	2.5
80°-90°	72.5	1.3
90°-100°	84.8	1.5
100°-110°	151.6	2.7
110°-120°	261.0	4.7
120°-130°	354.6	6.4
130°-140°	404.5	7.3
140°-150°	403.3	7.3
150°-160°	351.2	6.4
160°-170°	246.9	4.5
170°-180°	91.9	1.7
0°-30°	1041.0	18.9
0°-40°	1654.6	30.0
0°-60°	2677.1	48.5
0°-90°	3165.6	57.4
90°-120°	497.4	9.0
90°-150°	1659.9	30.1
90°-180°	2350.0	42.6
0°-180°	5515.5	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1394	1394	1394	1394	1394	
5°	1378	1391	1378	1391	1378	131
15°	1311	1301	1309	1301	1311	368
25°	1173	1179	1171	1179	1173	538
35°	957	1008	955	1008	957	600
45°	733	794	731	794	733	565
55°	522	482	521	482	522	470
65°	324	251	324	251	324	322
75°	153	119	155	119	153	170
85°	122	28	77	28	122	99
90°	150	2	47	2	150	84
95°	195	28	31	28	195	169
105°	298	137	6	137	298	315
115°	421	280	98	280	421	418
125°	527	440	240	440	527	471
135°	613	600	386	600	613	473
145°	673	750	519	750	673	424
155°	753	867	653	867	753	347
165°	823	942	796	942	823	233
175°	970	982	950	982	970	91
180°	981	981	981	981	981	



TEST NUMBER: P392529

CATALOG NUMBER: MWL-2-28-38-UNV-L930-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1394.4	1394.4	1394.4	1394.4	1394.4	1394.4	1394.4	1394.4	1394.4	1394.4	1394.4
2.5°	1388.2	1385.4	1392.5	1388.4	1392.4	1387.6	1392.5	1385.4	1388.8	1385.4	1392.5
5°	1377.5	1381.2	1384.3	1381.9	1390.9	1381.9	1383.6	1381.2	1377.5	1381.2	1383.6
7.5°	1370.8	1373.8	1374.6	1371.1	1362.1	1370.5	1373.8	1373.1	1370.8	1373.1	1373.8
10°	1348.4	1359.0	1356.5	1353.2	1351.6	1352.4	1355.8	1357.6	1348.4	1357.6	1355.8
12.5°	1327.6	1330.2	1340.1	1332.7	1329.6	1332.7	1340.1	1328.9	1326.2	1328.9	1340.1
15°	1311.1	1308.0	1315.5	1307.3	1300.9	1306.6	1314.9	1306.6	1309.0	1306.6	1314.9
17.5°	1282.3	1277.6	1285.1	1284.4	1281.1	1284.4	1284.4	1276.8	1280.2	1276.8	1284.4
20°	1244.5	1251.9	1250.6	1252.3	1248.4	1251.7	1249.9	1250.6	1242.3	1250.6	1249.9
22.5°	1216.6	1214.9	1216.0	1218.6	1222.9	1218.0	1215.4	1213.5	1215.2	1213.5	1215.4
25°	1173.0	1170.5	1180.6	1178.4	1179.3	1177.7	1179.2	1168.5	1171.0	1168.5	1179.2
27.5°	1125.3	1123.7	1138.7	1141.2	1141.5	1140.5	1137.3	1121.6	1123.3	1121.6	1137.3
30°	1073.5	1077.6	1094.9	1096.8	1095.5	1095.3	1092.9	1075.6	1070.8	1075.6	1092.9
32.5°	1025.9	1022.5	1041.5	1054.8	1052.5	1053.3	1039.4	1019.8	1023.1	1019.8	1039.4
35°	956.9	961.1	988.2	1004.7	1007.5	1002.5	986.2	959.0	954.9	959.0	986.2
37.5°	896.9	900.2	922.4	955.3	964.6	953.2	920.4	898.1	894.9	898.1	920.4
40°	846.8	836.9	855.8	894.5	908.7	893.2	853.0	834.1	844.0	834.1	853.0
42.5°	782.7	778.5	790.2	832.9	852.8	831.5	788.0	775.7	779.9	775.7	788.0
45°	732.6	721.0	722.7	766.3	794.4	765.0	720.0	719.0	730.6	719.0	720.0
47.5°	679.1	664.3	662.7	698.2	733.5	697.5	659.9	662.3	677.1	662.3	659.9
50°	624.9	617.5	601.0	626.7	657.3	625.2	598.3	614.8	622.8	614.8	598.3
52.5°	578.0	568.1	549.3	565.0	573.4	563.6	547.3	565.5	575.9	565.5	547.3
55°	522.2	518.2	496.8	497.7	482.2	496.3	494.7	516.1	520.8	516.1	494.7
57.5°	478.6	472.9	440.9	426.3	406.5	424.8	438.8	470.9	477.3	470.9	438.8
60°	425.4	418.9	383.5	357.2	347.4	356.6	382.0	417.4	424.7	417.4	382.0
62.5°	375.3	367.9	330.0	296.4	292.4	295.8	328.6	366.5	374.5	366.5	328.6
65°	323.5	311.2	273.4	245.4	251.4	244.8	272.7	310.6	323.5	310.6	272.7
67.5°	277.4	258.6	229.8	203.7	212.7	203.7	229.1	257.9	277.4	257.9	229.1
70°	230.0	209.4	188.9	167.5	177.3	167.5	188.9	210.1	230.6	210.1	188.9
72.5°	188.1	169.1	151.9	137.1	145.4	136.3	151.9	169.8	189.4	169.8	151.9
75°	152.7	132.2	117.4	108.4	119.0	108.4	118.2	132.8	154.7	132.8	118.2
77.5°	131.0	111.0	87.8	84.5	94.4	84.5	88.6	108.9	128.3	108.9	88.6
80°	118.2	102.6	70.2	63.1	71.4	63.1	68.9	91.6	105.0	91.6	68.9
82.5°	115.0	103.8	67.0	44.2	47.5	44.2	58.7	78.9	88.8	78.9	58.7
85°	121.7	113.1	73.2	35.7	27.8	34.3	53.1	71.0	76.7	71.0	53.1
87.5°	133.4	130.5	85.8	38.7	8.2	29.0	46.4	64.0	62.2	64.0	46.4
90°	150.5	148.5	104.1	44.9	1.5	18.7	35.7	51.0	46.8	51.0	35.7
92.5°	175.1	169.3	123.1	56.4	11.9	8.8	28.4	41.5	39.6	41.5	28.4
95°	194.7	191.4	143.8	72.7	28.4	3.6	19.3	31.0	30.8	31.0	19.3
97.5°	218.5	212.6	164.4	97.6	49.9	9.2	11.5	22.5	25.0	22.5	11.5
100°	236.5	231.7	189.7	127.3	76.3	23.7	6.5	14.5	18.7	14.5	6.5
102.5°	267.6	257.7	217.2	155.8	104.5	43.7	11.2	8.8	10.5	8.8	11.2
105°	297.5	287.8	251.9	185.4	137.1	70.6	28.6	9.9	6.5	9.9	28.6
107.5°	327.3	320.4	282.4	216.6	171.6	102.6	52.1	27.2	17.5	27.2	52.1
110°	361.9	353.5	312.1	247.1	208.3	135.8	79.1	49.3	38.3	49.3	79.1



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CATALOG NUMBER: MWL-2-28-38-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	395.1	388.8	339.7	278.9	245.7	171.8	112.3	77.0	66.6	77.0	112.3
115°	421.4	417.2	371.6	308.6	280.3	212.6	148.9	109.5	97.8	109.5	148.9
117.5°	448.4	447.7	395.9	339.1	321.7	249.1	183.6	142.8	129.7	142.8	183.6
120°	482.2	476.8	428.4	370.3	362.0	288.6	220.9	180.2	166.9	180.2	220.9
122.5°	505.8	502.3	456.0	399.3	399.3	328.2	256.9	216.1	202.3	216.1	256.9
125°	527.2	525.8	476.8	428.4	439.5	364.7	297.0	255.5	240.3	255.5	297.0
127.5°	546.6	548.6	503.7	460.1	480.2	402.1	336.4	290.8	274.9	290.8	336.4
130°	564.0	570.1	529.4	489.2	519.0	442.9	371.7	326.0	316.5	326.0	371.7
132.5°	596.5	592.4	555.5	519.8	561.2	481.0	409.0	362.1	350.4	362.1	409.0
135°	613.1	614.5	579.2	545.4	600.0	518.4	445.0	398.1	386.4	398.1	445.0
137.5°	633.2	628.9	597.2	576.5	635.9	554.3	479.7	436.1	417.4	436.1	479.7
140°	647.6	647.0	620.7	604.1	674.6	589.6	514.9	470.7	453.4	470.7	514.9
142.5°	662.8	667.1	644.2	634.6	713.3	626.9	553.0	504.6	488.0	504.6	553.0
145°	673.2	682.2	667.7	672.5	750.0	668.5	586.1	537.0	519.1	537.0	586.1
147.5°	690.6	702.3	684.9	699.6	781.8	705.0	619.3	570.9	555.1	570.9	619.3
150°	714.9	720.4	710.0	736.8	814.3	745.8	654.0	604.2	588.4	604.2	654.0
152.5°	733.5	740.5	728.7	777.7	839.8	783.2	691.4	636.1	617.4	636.1	691.4
155°	752.9	755.6	746.6	817.1	866.9	819.8	720.2	671.3	653.3	671.3	720.2
157.5°	770.9	776.4	765.9	846.8	890.4	851.6	754.1	706.6	690.7	706.6	754.1
160°	790.2	790.2	794.9	881.4	908.9	879.3	790.2	745.3	723.2	745.3	790.2
162.5°	792.3	804.6	834.4	905.6	927.5	903.5	828.8	772.1	753.6	772.1	828.8
165°	822.7	833.6	878.6	927.0	942.0	924.9	876.5	817.7	795.7	817.7	876.5
167.5°	853.6	878.6	914.5	950.3	955.9	944.1	913.1	872.3	851.6	872.3	913.1
170°	905.6	927.0	944.1	960.2	967.8	960.9	935.2	915.9	902.8	915.9	935.2
172.5°	945.5	960.2	966.3	976.7	971.9	969.2	955.9	947.1	939.2	947.1	955.9
175°	970.2	973.8	981.0	977.5	981.6	973.9	974.7	978.8	949.5	978.8	974.7
177.5°	980.1	984.9	982.3	976.9	977.6	976.2	978.1	980.1	975.9	980.1	978.1
180°	981.0	981.0	981.0	981.0	981.0	981.0	981.0	981.0	981.0	981.0	981.0



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CATALOG NUMBER: MWL-2-28-38-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1394.4	1394.4	1394.4	1394.4	1394.4	1394.4
2.5°	1387.6	1392.4	1388.4	1392.5	1385.4	1388.2
5°	1381.9	1390.9	1381.9	1384.3	1381.2	1377.5
7.5°	1370.5	1362.1	1371.1	1374.6	1373.8	1370.8
10°	1352.4	1351.6	1353.2	1356.5	1359.0	1348.4
12.5°	1332.7	1329.6	1332.7	1340.1	1330.2	1327.6
15°	1306.6	1300.9	1307.3	1315.5	1308.0	1311.1
17.5°	1284.4	1281.1	1284.4	1285.1	1277.6	1282.3
20°	1251.7	1248.4	1252.3	1250.6	1251.9	1244.5
22.5°	1218.0	1222.9	1218.6	1216.0	1214.9	1216.6
25°	1177.7	1179.3	1178.4	1180.6	1170.5	1173.0
27.5°	1140.5	1141.5	1141.2	1138.7	1123.7	1125.3
30°	1095.3	1095.5	1096.8	1094.9	1077.6	1073.5
32.5°	1053.3	1052.5	1054.8	1041.5	1022.5	1025.9
35°	1002.5	1007.5	1004.7	988.2	961.1	956.9
37.5°	953.2	964.6	955.3	922.4	900.2	896.9
40°	893.2	908.7	894.5	855.8	836.9	846.8
42.5°	831.5	852.8	832.9	790.2	778.5	782.7
45°	765.0	794.4	766.3	722.7	721.0	732.6
47.5°	697.5	733.5	698.2	662.7	664.3	679.1
50°	625.2	657.3	626.7	601.0	617.5	624.9
52.5°	563.6	573.4	565.0	549.3	568.1	578.0
55°	496.3	482.2	497.7	496.8	518.2	522.2
57.5°	424.8	406.5	426.3	440.9	472.9	478.6
60°	356.6	347.4	357.2	383.5	418.9	425.4
62.5°	295.8	292.4	296.4	330.0	367.9	375.3
65°	244.8	251.4	245.4	273.4	311.2	323.5
67.5°	203.7	212.7	203.7	229.8	258.6	277.4
70°	167.5	177.3	167.5	188.9	209.4	230.0
72.5°	136.3	145.4	137.1	151.9	169.1	188.1
75°	108.4	119.0	108.4	117.4	132.2	152.7
77.5°	84.5	94.4	84.5	87.8	111.0	131.0
80°	63.1	71.4	63.1	70.2	102.6	118.2
82.5°	44.2	47.5	44.2	67.0	103.8	115.0
85°	34.3	27.8	35.7	73.2	113.1	121.7
87.5°	29.0	8.2	38.7	85.8	130.5	133.4
90°	18.7	1.5	44.9	104.1	148.5	150.5
92.5°	8.8	11.9	56.4	123.1	169.3	175.1
95°	3.6	28.4	72.7	143.8	191.4	194.7
97.5°	9.2	49.9	97.6	164.4	212.6	218.5
100°	23.7	76.3	127.3	189.7	231.7	236.5
102.5°	43.7	104.5	155.8	217.2	257.7	267.6
105°	70.6	137.1	185.4	251.9	287.8	297.5
107.5°	102.6	171.6	216.6	282.4	320.4	327.3
110°	135.8	208.3	247.1	312.1	353.5	361.9



TEST NUMBER: P392529

CATALOG NUMBER: MWL-2-28-38-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	171.8	245.7	278.9	339.7	388.8	395.1
115°	212.6	280.3	308.6	371.6	417.2	421.4
117.5°	249.1	321.7	339.1	395.9	447.7	448.4
120°	288.6	362.0	370.3	428.4	476.8	482.2
122.5°	328.2	399.3	399.3	456.0	502.3	505.8
125°	364.7	439.5	428.4	476.8	525.8	527.2
127.5°	402.1	480.2	460.1	503.7	548.6	546.6
130°	442.9	519.0	489.2	529.4	570.1	564.0
132.5°	481.0	561.2	519.8	555.5	592.4	596.5
135°	518.4	600.0	545.4	579.2	614.5	613.1
137.5°	554.3	635.9	576.5	597.2	628.9	633.2
140°	589.6	674.6	604.1	620.7	647.0	647.6
142.5°	626.9	713.3	634.6	644.2	667.1	662.8
145°	668.5	750.0	672.5	667.7	682.2	673.2
147.5°	705.0	781.8	699.6	684.9	702.3	690.6
150°	745.8	814.3	736.8	710.0	720.4	714.9
152.5°	783.2	839.8	777.7	728.7	740.5	733.5
155°	819.8	866.9	817.1	746.6	755.6	752.9
157.5°	851.6	890.4	846.8	765.9	776.4	770.9
160°	879.3	908.9	881.4	794.9	790.2	790.2
162.5°	903.5	927.5	905.6	834.4	804.6	792.3
165°	924.9	942.0	927.0	878.6	833.6	822.7
167.5°	944.1	955.9	950.3	914.5	878.6	853.6
170°	960.9	967.8	960.2	944.1	927.0	905.6
172.5°	969.2	971.9	976.7	966.3	960.2	945.5
175°	973.9	981.6	977.5	981.0	973.8	970.2
177.5°	976.2	977.6	976.9	982.3	984.9	980.1
180°	981.0	981.0	981.0	981.0	981.0	981.0

(END OF REPORT)