

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: P392486

Luminaire Tested: **MWL-2-13-38-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392486
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-2-13-38-UNV-L840-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5188.2 lumens
Efficiency: N/A
Efficacy: 95.7 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: Semi-Direct

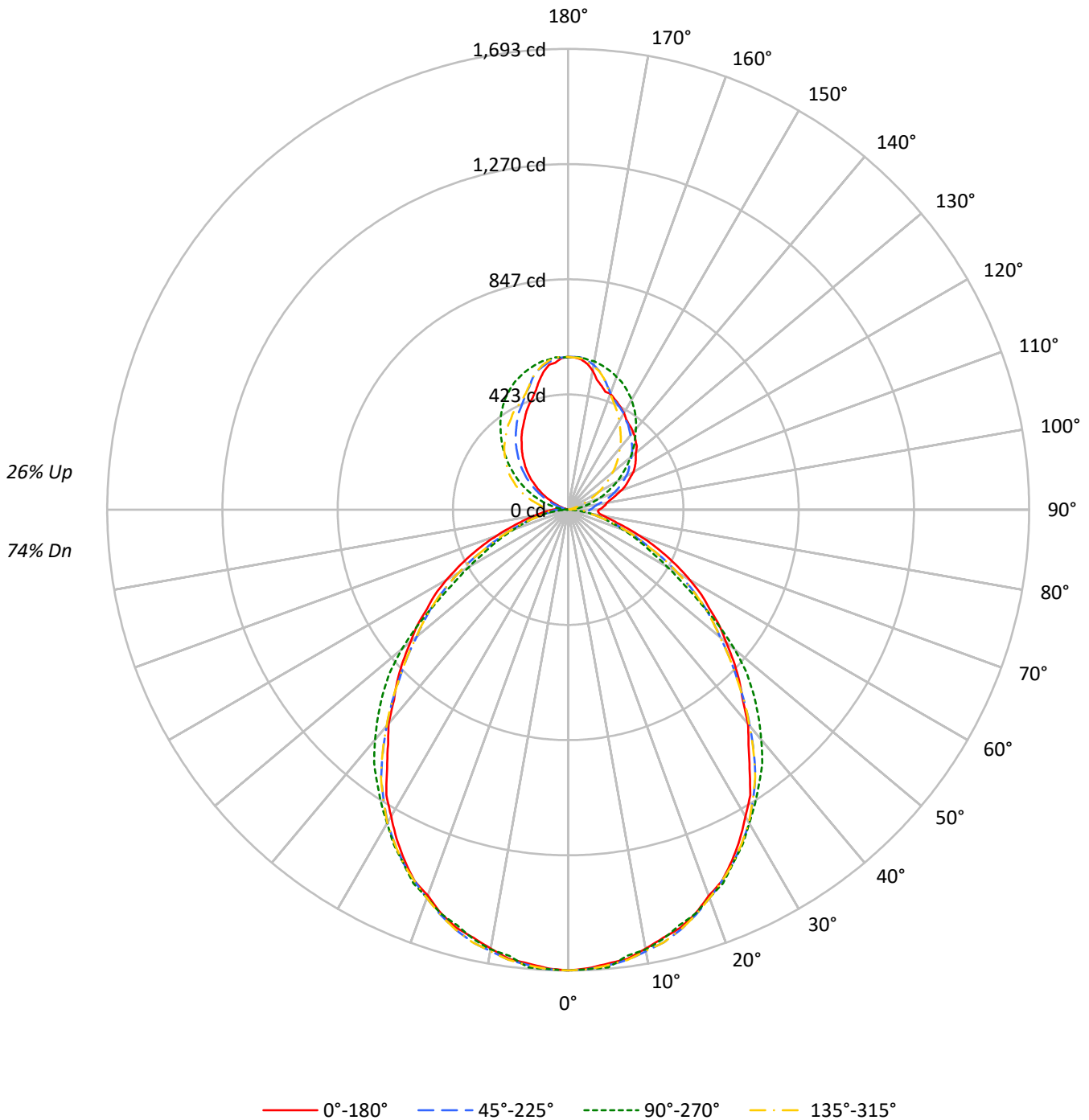
Input Watts (W): 54.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78	74
1	104	99	95	92	98	95	91	88	86	83	81	77	75	74	70	68	67	63
2	95	88	81	76	90	83	78	73	76	71	68	69	65	62	62	60	57	54
3	87	78	70	64	82	74	67	62	67	62	58	61	57	54	56	52	50	46
4	80	69	61	55	76	66	59	53	60	55	50	55	50	46	50	46	43	40
5	74	62	54	48	70	59	52	46	54	48	44	50	45	41	45	41	38	35
6	68	56	48	42	65	54	46	41	49	43	38	45	40	36	41	37	34	31
7	63	51	43	37	60	49	41	36	45	39	34	41	36	32	38	34	30	28
8	59	46	39	33	56	45	37	32	41	35	31	38	33	29	35	31	27	25
9	55	43	35	30	52	41	34	29	38	32	28	35	30	26	32	28	25	23
10	52	39	32	27	49	38	31	26	35	29	25	33	27	24	30	26	23	21

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	21863	21863	21863	21863
5°	21309	20126	21309	20126
10°	20714	18294	20714	18294
15°	20143	16662	20129	16662
20°	19285	15283	19271	15283
25°	18486	13923	18471	13923
30°	17336	12581	17314	12581
35°	15972	11347	15956	11347
40°	14736	10112	14713	10112
45°	13429	8804	13411	8804
50°	12191	7312	12172	7312
55°	10984	5426	10971	5426
60°	9788	3983	9780	3983
65°	8285	2963	8285	2963
70°	6696	2165	6706	2165
75°	5189	1523	5222	1523
80°	4487	963	4235	963
85°	4878	398	3756	398



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.2	3.1
10°-20°	447.8	8.6
20°-30°	656.9	12.7
30°-40°	744.7	14.4
40°-50°	694.9	13.4
50°-60°	545.7	10.5
60°-70°	339.7	6.5
70°-80°	163.9	3.2
80°-90°	76.0	1.5
90°-100°	59.9	1.2
100°-110°	87.8	1.7
110°-120°	149.9	2.9
120°-130°	203.5	3.9
130°-140°	232.1	4.5
140°-150°	231.2	4.5
150°-160°	201.2	3.9
160°-170°	141.3	2.7
170°-180°	52.6	1.0
0°-30°	1263.8	24.4
0°-40°	2008.5	38.7
0°-60°	3249.1	62.6
0°-90°	3828.7	73.8
90°-120°	297.6	5.7
90°-150°	964.4	18.6
90°-180°	1359.0	26.2
0°-180°	5188.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1693	1693	1693	1693	1693	
5°	1673	1688	1673	1688	1673	159
15°	1590	1580	1589	1580	1590	447
25°	1423	1432	1422	1432	1423	653
35°	1161	1224	1160	1224	1161	728
45°	888	964	887	964	888	685
55°	633	585	632	585	633	570
65°	392	305	392	305	392	391
75°	185	144	186	144	185	204
85°	111	33	86	33	111	95
90°	113	1	54	1	113	63
95°	130	17	36	17	130	109
105°	171	79	5	79	171	182
115°	242	161	57	161	242	240
125°	302	252	138	252	302	270
135°	352	344	222	344	352	271
145°	386	430	298	430	386	243
155°	432	496	375	496	432	199
165°	472	538	456	538	472	134
175°	554	561	542	561	554	52
180°	561	561	561	561	561	



TEST NUMBER: P392486

CATALOG NUMBER: MWL-2-13-38-UNV-L840-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1692.6	1692.6	1692.6	1692.6	1692.6	1692.6	1692.6	1692.6	1692.6	1692.6	1692.6
2.5°	1686.4	1682.2	1690.0	1684.3	1689.3	1684.0	1690.0	1682.2	1686.8	1682.2	1690.0
5°	1673.4	1677.2	1680.0	1677.0	1688.0	1677.0	1679.6	1677.2	1673.4	1677.2	1679.6
7.5°	1664.8	1667.6	1668.6	1664.0	1653.0	1663.6	1668.2	1667.2	1664.8	1667.2	1668.2
10°	1637.3	1649.6	1646.7	1642.7	1640.7	1642.3	1646.3	1648.9	1637.3	1648.9	1646.3
12.5°	1611.1	1614.7	1627.3	1618.3	1614.9	1618.3	1627.3	1613.9	1610.3	1613.9	1627.3
15°	1590.4	1587.7	1597.3	1587.3	1579.9	1586.9	1596.9	1586.9	1589.3	1586.9	1596.9
17.5°	1555.4	1550.7	1560.3	1559.9	1555.9	1559.9	1559.9	1550.3	1554.3	1550.3	1559.9
20°	1509.4	1519.1	1518.3	1520.9	1516.5	1520.5	1517.9	1518.3	1508.3	1518.3	1517.9
22.5°	1476.1	1474.1	1476.3	1479.9	1485.5	1479.5	1475.9	1473.3	1475.3	1473.3	1475.9
25°	1423.1	1420.1	1432.7	1430.9	1432.5	1430.5	1431.9	1418.9	1421.9	1418.9	1431.9
27.5°	1365.1	1363.1	1381.7	1385.3	1386.5	1384.9	1380.9	1361.9	1363.9	1361.9	1380.9
30°	1302.1	1307.1	1328.1	1330.7	1330.5	1329.9	1326.9	1305.9	1300.5	1305.9	1326.9
32.5°	1244.1	1240.1	1263.1	1279.7	1277.9	1278.9	1261.9	1238.5	1242.5	1238.5	1261.9
35°	1160.7	1165.7	1198.7	1218.7	1223.5	1217.5	1197.5	1164.5	1159.5	1164.5	1197.5
37.5°	1087.7	1091.7	1118.7	1158.7	1170.9	1157.5	1117.5	1090.5	1086.5	1090.5	1117.5
40°	1026.7	1014.7	1037.7	1085.3	1102.9	1084.5	1036.1	1013.1	1025.1	1013.1	1036.1
42.5°	948.7	943.7	958.3	1010.3	1034.9	1009.5	957.1	942.1	947.1	942.1	957.1
45°	888.3	874.3	876.3	929.3	963.9	928.5	874.7	873.1	887.1	873.1	874.7
47.5°	823.3	805.3	803.3	846.9	889.9	846.5	801.7	804.1	822.1	804.1	801.7
50°	757.3	748.3	728.3	759.9	797.5	759.1	726.7	746.7	756.1	746.7	726.7
52.5°	700.3	688.3	665.9	684.9	695.5	684.1	664.7	686.7	699.1	686.7	664.7
55°	632.9	627.9	601.9	603.5	585.1	602.7	600.7	626.7	632.1	626.7	600.7
57.5°	579.9	572.9	534.0	516.6	493.2	515.8	532.8	571.7	579.1	571.7	532.8
60°	515.6	507.6	464.6	433.2	421.2	432.8	463.8	506.8	515.2	506.8	463.8
62.5°	454.6	445.6	399.6	359.2	354.8	358.8	398.8	444.8	454.2	444.8	398.8
65°	392.2	377.2	331.2	297.2	304.8	296.8	330.8	376.8	392.2	376.8	330.8
67.5°	336.2	313.2	278.2	246.8	257.8	246.8	277.8	312.8	336.2	312.8	277.8
70°	278.8	253.8	228.8	202.8	214.8	202.8	228.8	254.2	279.2	254.2	228.8
72.5°	227.8	204.8	183.8	165.8	176.4	165.4	183.8	205.2	228.6	205.2	183.8
75°	184.8	159.8	142.4	131.4	144.4	131.4	142.8	160.2	186.0	160.2	142.8
77.5°	154.9	132.4	106.4	102.4	114.4	102.4	106.8	131.2	153.4	131.2	106.8
80°	131.6	115.9	83.6	76.4	86.4	76.4	82.8	109.6	124.2	109.6	82.8
82.5°	117.1	107.5	74.3	53.4	57.4	53.4	69.6	93.4	102.1	93.4	69.6
85°	111.3	105.4	72.0	41.6	33.4	40.8	60.5	81.3	85.7	81.3	60.5
87.5°	109.5	109.9	74.4	38.5	10.0	33.0	51.9	72.1	68.9	72.1	51.9
90°	112.9	114.9	80.6	36.8	1.4	21.8	41.6	59.4	53.8	59.4	41.6
92.5°	123.2	121.5	87.2	37.0	7.3	9.8	33.2	48.6	46.0	48.6	33.2
95°	129.6	128.2	93.1	42.0	16.8	2.6	22.2	36.8	36.2	36.8	22.2
97.5°	138.9	133.9	98.4	56.2	29.0	5.7	11.4	25.6	28.6	25.6	11.4
100°	143.3	137.9	109.2	73.1	43.9	14.0	4.8	14.2	19.2	14.2	4.8
102.5°	155.7	149.0	124.3	89.3	60.1	25.4	6.9	7.2	9.2	7.2	6.9
105°	170.6	165.1	144.6	106.2	78.6	40.8	17.4	6.7	4.8	6.7	17.4
107.5°	187.6	183.6	162.0	124.5	98.3	59.5	30.8	16.6	11.1	16.6	30.8
110°	207.3	202.5	178.9	141.9	119.8	78.4	46.1	29.2	22.9	29.2	46.1



TEST NUMBER: P392486

CATALOG NUMBER: MWL-2-13-38-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	226.2	222.6	194.7	160.0	141.1	98.9	65.0	44.9	39.0	44.9	65.0
115°	241.8	238.8	212.8	176.9	160.8	122.2	85.9	63.5	57.4	63.5	85.9
117.5°	257.1	256.7	227.2	194.3	184.4	143.1	106.2	83.0	75.5	83.0	106.2
120°	276.4	273.3	245.7	212.6	207.9	166.1	127.5	104.3	96.8	104.3	127.5
122.5°	289.8	287.9	261.5	229.2	229.2	188.6	148.0	124.7	116.9	124.7	148.0
125°	302.0	301.3	273.3	245.7	252.0	209.5	170.8	147.2	138.5	147.2	170.8
127.5°	313.1	314.3	288.6	263.8	275.3	230.7	193.3	167.3	158.2	167.3	193.3
130°	323.5	326.5	303.2	280.4	297.3	254.0	213.4	187.4	182.5	187.4	213.4
132.5°	342.0	339.7	318.2	298.3	322.0	276.3	234.7	208.5	201.8	208.5	234.7
135°	351.5	352.3	332.2	312.9	344.0	297.5	255.8	229.0	222.3	229.0	255.8
137.5°	362.9	360.6	342.4	330.6	364.5	318.0	275.5	250.6	240.0	250.6	275.5
140°	371.2	370.8	355.8	346.4	386.6	338.1	295.6	270.3	260.5	270.3	295.6
142.5°	379.9	382.2	369.2	363.7	408.6	359.4	317.2	289.6	280.2	289.6	317.2
145°	385.8	390.9	382.6	385.4	429.5	383.0	336.1	308.2	297.9	308.2	336.1
147.5°	395.6	402.3	392.5	400.8	447.6	403.9	355.1	327.5	318.4	327.5	355.1
150°	410.0	413.2	407.3	422.0	466.2	427.2	375.4	347.0	337.9	347.0	375.4
152.5°	420.7	424.6	417.9	445.3	480.7	448.4	396.6	365.1	354.5	365.1	396.6
155°	431.7	433.3	427.5	467.7	496.1	469.3	412.6	385.2	375.0	385.2	412.6
157.5°	441.9	445.1	438.6	484.7	509.5	487.4	431.9	405.3	396.2	405.3	431.9
160°	453.0	453.0	455.1	504.4	519.5	503.2	452.4	427.4	414.8	427.4	452.4
162.5°	454.2	460.6	477.6	518.2	530.2	517.0	474.4	442.1	432.1	442.1	474.4
165°	471.5	477.2	502.8	530.4	538.4	529.2	501.6	468.1	456.1	468.1	501.6
167.5°	488.6	502.8	523.3	543.2	546.3	539.6	522.5	499.3	487.4	499.3	522.5
170°	518.2	530.4	539.6	549.3	553.5	549.6	534.5	524.1	516.6	524.1	534.5
172.5°	540.4	549.3	552.1	558.6	555.9	554.3	546.3	541.8	536.9	541.8	546.3
175°	553.9	556.5	561.0	559.0	561.4	557.1	557.5	559.2	542.2	559.2	557.5
177.5°	560.0	562.8	561.8	559.3	559.6	558.9	559.4	560.0	557.6	560.0	559.4
180°	561.0	561.0	561.0	561.0	561.0	561.0	561.0	561.0	561.0	561.0	561.0



TEST NUMBER: P392486

CATALOG NUMBER: MWL-2-13-38-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1692.6	1692.6	1692.6	1692.6	1692.6	1692.6
2.5°	1684.0	1689.3	1684.3	1690.0	1682.2	1686.4
5°	1677.0	1688.0	1677.0	1680.0	1677.2	1673.4
7.5°	1663.6	1653.0	1664.0	1668.6	1667.6	1664.8
10°	1642.3	1640.7	1642.7	1646.7	1649.6	1637.3
12.5°	1618.3	1614.9	1618.3	1627.3	1614.7	1611.1
15°	1586.9	1579.9	1587.3	1597.3	1587.7	1590.4
17.5°	1559.9	1555.9	1559.9	1560.3	1550.7	1555.4
20°	1520.5	1516.5	1520.9	1518.3	1519.1	1509.4
22.5°	1479.5	1485.5	1479.9	1476.3	1474.1	1476.1
25°	1430.5	1432.5	1430.9	1432.7	1420.1	1423.1
27.5°	1384.9	1386.5	1385.3	1381.7	1363.1	1365.1
30°	1329.9	1330.5	1330.7	1328.1	1307.1	1302.1
32.5°	1278.9	1277.9	1279.7	1263.1	1240.1	1244.1
35°	1217.5	1223.5	1218.7	1198.7	1165.7	1160.7
37.5°	1157.5	1170.9	1158.7	1118.7	1091.7	1087.7
40°	1084.5	1102.9	1085.3	1037.7	1014.7	1026.7
42.5°	1009.5	1034.9	1010.3	958.3	943.7	948.7
45°	928.5	963.9	929.3	876.3	874.3	888.3
47.5°	846.5	889.9	846.9	803.3	805.3	823.3
50°	759.1	797.5	759.9	728.3	748.3	757.3
52.5°	684.1	695.5	684.9	665.9	688.3	700.3
55°	602.7	585.1	603.5	601.9	627.9	632.9
57.5°	515.8	493.2	516.6	534.0	572.9	579.9
60°	432.8	421.2	433.2	464.6	507.6	515.6
62.5°	358.8	354.8	359.2	399.6	445.6	454.6
65°	296.8	304.8	297.2	331.2	377.2	392.2
67.5°	246.8	257.8	246.8	278.2	313.2	336.2
70°	202.8	214.8	202.8	228.8	253.8	278.8
72.5°	165.4	176.4	165.8	183.8	204.8	227.8
75°	131.4	144.4	131.4	142.4	159.8	184.8
77.5°	102.4	114.4	102.4	106.4	132.4	154.9
80°	76.4	86.4	76.4	83.6	115.9	131.6
82.5°	53.4	57.4	53.4	74.3	107.5	117.1
85°	40.8	33.4	41.6	72.0	105.4	111.3
87.5°	33.0	10.0	38.5	74.4	109.9	109.5
90°	21.8	1.4	36.8	80.6	114.9	112.9
92.5°	9.8	7.3	37.0	87.2	121.5	123.2
95°	2.6	16.8	42.0	93.1	128.2	129.6
97.5°	5.7	29.0	56.2	98.4	133.9	138.9
100°	14.0	43.9	73.1	109.2	137.9	143.3
102.5°	25.4	60.1	89.3	124.3	149.0	155.7
105°	40.8	78.6	106.2	144.6	165.1	170.6
107.5°	59.5	98.3	124.5	162.0	183.6	187.6
110°	78.4	119.8	141.9	178.9	202.5	207.3



TEST NUMBER: P392486

CATALOG NUMBER: MWL-2-13-38-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	98.9	141.1	160.0	194.7	222.6	226.2
115°	122.2	160.8	176.9	212.8	238.8	241.8
117.5°	143.1	184.4	194.3	227.2	256.7	257.1
120°	166.1	207.9	212.6	245.7	273.3	276.4
122.5°	188.6	229.2	229.2	261.5	287.9	289.8
125°	209.5	252.0	245.7	273.3	301.3	302.0
127.5°	230.7	275.3	263.8	288.6	314.3	313.1
130°	254.0	297.3	280.4	303.2	326.5	323.5
132.5°	276.3	322.0	298.3	318.2	339.7	342.0
135°	297.5	344.0	312.9	332.2	352.3	351.5
137.5°	318.0	364.5	330.6	342.4	360.6	362.9
140°	338.1	386.6	346.4	355.8	370.8	371.2
142.5°	359.4	408.6	363.7	369.2	382.2	379.9
145°	383.0	429.5	385.4	382.6	390.9	385.8
147.5°	403.9	447.6	400.8	392.5	402.3	395.6
150°	427.2	466.2	422.0	407.3	413.2	410.0
152.5°	448.4	480.7	445.3	417.9	424.6	420.7
155°	469.3	496.1	467.7	427.5	433.3	431.7
157.5°	487.4	509.5	484.7	438.6	445.1	441.9
160°	503.2	519.5	504.4	455.1	453.0	453.0
162.5°	517.0	530.2	518.2	477.6	460.6	454.2
165°	529.2	538.4	530.4	502.8	477.2	471.5
167.5°	539.6	546.3	543.2	523.3	502.8	488.6
170°	549.6	553.5	549.3	539.6	530.4	518.2
172.5°	554.3	555.9	558.6	552.1	549.3	540.4
175°	557.1	561.4	559.0	561.0	556.5	553.9
177.5°	558.9	559.6	559.3	561.8	562.8	560.0
180°	561.0	561.0	561.0	561.0	561.0	561.0

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