

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: P392516

Luminaire Tested: **MWL-2-22-38-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392516
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-2-22-38-UNV-L940-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

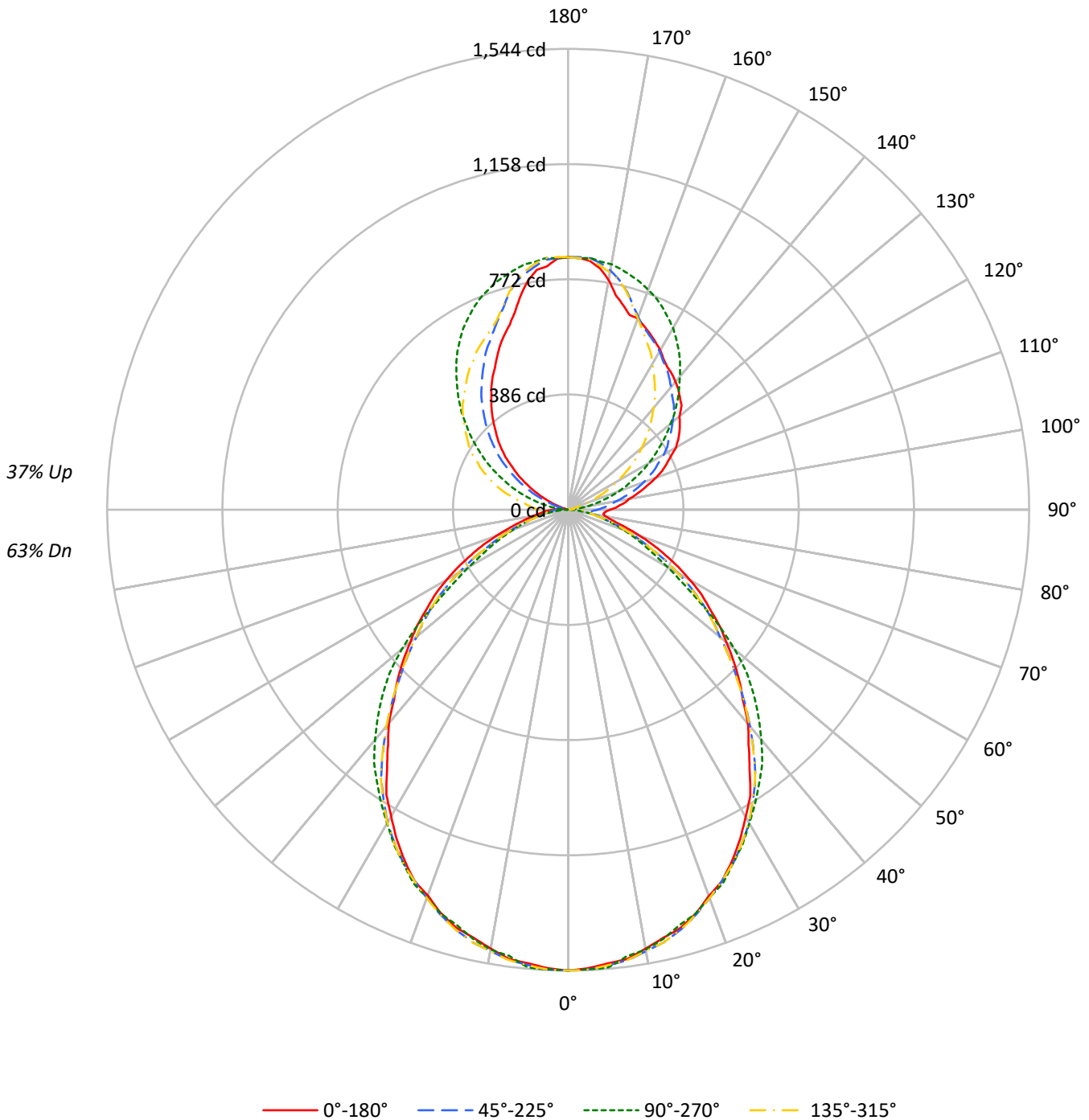
Lumens per Lamp: N/A
Luminaire Lumens: 5532.3 lumens
Efficiency: N/A
Efficacy: 85.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 64.539
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	63
1	101	97	93	90	95	91	88	85	80	78	75	70	68	67	61	60	58	54
2	93	85	79	74	87	80	75	70	71	67	63	62	59	57	54	52	50	46
3	85	75	68	62	79	71	65	60	63	58	54	56	52	48	49	46	43	40
4	78	67	59	53	73	63	56	51	56	51	46	50	46	42	44	40	38	34
5	72	60	52	46	67	57	50	44	51	45	40	45	40	37	40	36	33	30
6	66	54	46	40	62	51	44	39	46	40	36	41	36	32	36	32	29	27
7	61	49	41	36	58	47	39	34	42	36	32	37	33	29	33	29	26	24
8	57	45	37	32	54	43	35	31	38	32	28	34	29	26	31	27	24	22
9	53	41	34	28	50	39	32	27	35	29	25	32	27	23	28	24	22	19
10	50	38	31	26	47	36	29	25	33	27	23	29	25	21	26	22	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	19942	19942	19942	19942
5°	19427	18360	19427	18360
10°	18890	16686	18890	16686
15°	18380	15193	18357	15193
20°	17599	13933	17576	13933
25°	16866	12695	16844	12695
30°	15819	11471	15787	11471
35°	14576	10346	14549	10346
40°	13450	9223	13415	9223
45°	12256	8032	12230	8032
50°	11130	6671	11103	6671
55°	10030	4952	10009	4952
60°	8935	3636	8924	3636
65°	7565	2704	7565	2704
70°	6113	1977	6127	1977
75°	4739	1390	4790	1390
80°	4310	881	3921	881
85°	5295	366	3598	366



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	145.2	2.6
10°-20°	408.4	7.4
20°-30°	599.1	10.8
30°-40°	679.3	12.3
40°-50°	634.0	11.5
50°-60°	498.0	9.0
60°-70°	310.1	5.6
70°-80°	150.0	2.7
80°-90°	75.7	1.4
90°-100°	77.5	1.4
100°-110°	131.2	2.4
110°-120°	225.4	4.1
120°-130°	306.1	5.5
130°-140°	349.2	6.3
140°-150°	348.1	6.3
150°-160°	303.1	5.5
160°-170°	212.9	3.8
170°-180°	79.3	1.4
0°-30°	1152.6	20.8
0°-40°	1831.9	33.1
0°-60°	2963.9	53.6
0°-90°	3499.7	63.3
90°-120°	434.0	7.8
90°-150°	1437.4	26.0
90°-180°	2033.0	36.7
0°-180°	5532.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1544	1544	1544	1544	1544	
5°	1526	1540	1526	1540	1526	145
15°	1451	1441	1449	1441	1451	408
25°	1298	1306	1297	1306	1298	596
35°	1059	1116	1057	1116	1059	664
45°	811	879	809	879	811	625
55°	578	534	577	534	578	520
65°	358	278	358	278	358	357
75°	169	132	171	132	169	187
85°	121	31	82	31	121	100
90°	140	2	51	2	140	78
95°	175	25	34	25	175	150
105°	257	118	6	118	257	272
115°	364	242	85	242	364	361
125°	455	379	208	379	455	406
135°	529	518	334	518	529	408
145°	581	647	448	647	581	366
155°	650	748	564	748	650	300
165°	710	812	687	812	710	201
175°	836	847	818	847	836	78
180°	846	846	846	846	846	



TEST NUMBER: P392516

CATALOG NUMBER: MWL-2-22-38-UNV-L940-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1543.9	1543.9	1543.9	1543.9	1543.9	1543.9	1543.9	1543.9	1543.9	1543.9	1543.9
2.5°	1537.5	1534.1	1541.7	1536.8	1541.4	1536.2	1541.7	1534.1	1538.1	1534.1	1541.7
5°	1525.6	1529.6	1532.6	1529.8	1539.9	1529.8	1532.0	1529.6	1525.6	1529.6	1532.0
7.5°	1518.1	1521.1	1522.0	1518.0	1508.0	1517.4	1521.4	1520.4	1518.1	1520.4	1521.4
10°	1493.1	1504.7	1501.9	1498.3	1496.5	1497.7	1501.3	1503.5	1493.1	1503.5	1501.3
12.5°	1469.7	1472.8	1484.0	1475.8	1472.5	1475.8	1484.0	1471.6	1468.5	1471.6	1484.0
15°	1451.2	1448.2	1456.7	1447.6	1440.6	1447.0	1456.1	1447.0	1449.4	1447.0	1456.1
17.5°	1419.3	1414.5	1423.0	1422.4	1418.8	1422.4	1422.4	1413.8	1417.5	1413.8	1422.4
20°	1377.4	1385.9	1384.7	1386.9	1382.6	1386.2	1384.1	1384.7	1375.6	1384.7	1384.1
22.5°	1346.7	1344.9	1346.4	1349.5	1354.4	1348.9	1345.9	1343.7	1345.5	1343.7	1345.9
25°	1298.4	1295.7	1307.0	1304.9	1306.1	1304.2	1305.8	1293.9	1296.7	1293.9	1305.8
27.5°	1245.6	1243.7	1260.5	1263.5	1264.2	1263.0	1259.3	1242.0	1243.8	1242.0	1259.3
30°	1188.2	1192.7	1211.9	1214.0	1213.1	1212.9	1210.1	1191.0	1185.8	1191.0	1210.1
32.5°	1135.3	1131.7	1152.6	1167.6	1165.5	1166.4	1150.9	1129.3	1133.0	1129.3	1150.9
35°	1059.2	1063.7	1093.8	1112.0	1115.6	1110.2	1092.0	1061.9	1057.3	1061.9	1092.0
37.5°	992.6	996.3	1020.9	1057.3	1068.0	1055.5	1019.1	994.5	990.8	994.5	1019.1
40°	937.1	926.1	947.1	990.2	1006.0	989.0	944.7	923.8	934.7	923.8	944.7
42.5°	866.0	861.4	874.5	921.9	944.1	920.7	872.7	859.1	863.6	859.1	872.7
45°	810.7	797.9	799.8	848.1	879.4	846.9	797.4	796.2	809.0	796.2	797.4
47.5°	751.6	735.2	733.3	772.8	812.0	772.2	731.0	733.4	749.8	733.4	731.0
50°	691.4	683.2	665.0	693.6	727.6	692.4	662.6	680.9	689.7	680.9	662.6
52.5°	639.5	628.6	608.0	625.3	634.7	624.1	606.2	626.2	637.8	626.2	606.2
55°	577.9	573.4	549.7	550.9	533.9	549.7	547.8	571.5	576.7	571.5	547.8
57.5°	529.6	523.2	487.7	471.6	450.1	470.4	485.9	521.4	528.4	521.4	485.9
60°	470.7	463.4	424.2	395.4	384.5	394.8	423.0	462.2	470.1	462.2	423.0
62.5°	415.1	406.9	365.0	328.0	323.7	327.4	363.8	405.7	414.6	405.7	363.8
65°	358.1	344.4	302.5	271.5	278.2	270.9	301.8	343.8	358.1	343.8	301.8
67.5°	307.0	286.1	254.2	225.3	235.3	225.3	253.6	285.4	307.0	285.4	253.6
70°	254.5	231.7	208.9	185.2	196.2	185.2	208.9	232.3	255.1	232.3	208.9
72.5°	208.0	187.0	167.9	151.5	161.0	151.0	167.9	187.7	209.2	187.7	167.9
75°	168.8	146.0	130.0	120.0	131.8	120.0	130.6	146.7	170.6	146.7	130.6
77.5°	143.5	122.0	97.2	93.6	104.5	93.6	97.8	120.3	141.1	120.3	97.8
80°	126.4	110.3	77.1	69.9	79.0	69.9	75.9	100.8	115.0	100.8	75.9
82.5°	118.7	108.0	71.5	48.9	52.6	48.9	64.3	86.5	96.1	86.5	64.3
85°	120.8	113.1	74.5	38.8	30.7	37.6	57.3	76.7	82.1	76.7	57.3
87.5°	127.7	126.0	83.6	39.5	9.1	31.3	49.7	68.8	66.3	68.8	49.7
90°	140.0	139.5	97.9	43.0	1.5	20.3	38.8	55.5	50.7	55.5	38.8
92.5°	159.8	155.4	112.5	50.5	10.5	9.4	31.0	45.2	43.1	45.2	31.0
95°	174.8	172.2	128.2	62.9	24.8	3.3	21.0	34.0	33.7	34.0	21.0
97.5°	193.8	188.1	143.4	84.3	43.2	8.0	11.8	24.2	27.0	24.2	11.8
100°	207.0	201.9	163.9	110.0	65.9	20.6	6.0	14.8	19.3	14.8	6.0
102.5°	231.9	222.9	187.4	134.4	90.3	37.8	9.8	8.4	10.2	8.4	9.8
105°	256.8	248.5	217.5	160.0	118.3	61.0	25.1	8.9	6.0	8.9	25.1
107.5°	282.4	276.5	243.7	187.1	148.1	88.8	45.3	23.9	15.5	23.9	45.3
110°	312.2	305.0	269.3	213.3	179.9	117.4	68.5	42.9	33.4	42.9	68.5



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CATALOG NUMBER: MWL-2-22-38-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	340.8	335.5	293.2	240.7	212.1	148.4	97.1	66.8	57.9	66.8	97.1
115°	363.8	359.9	320.5	266.3	241.9	183.5	128.7	94.8	84.9	94.8	128.7
117.5°	387.0	386.4	341.8	292.6	277.7	215.1	158.8	123.6	112.3	123.6	158.8
120°	416.2	411.5	369.7	319.7	312.5	249.4	191.0	155.9	144.5	155.9	191.0
122.5°	436.5	433.5	393.6	344.7	344.7	283.4	221.9	186.9	174.9	186.9	221.9
125°	454.9	453.7	411.5	369.7	379.3	315.0	256.6	220.8	207.6	220.8	256.6
127.5°	471.6	473.4	434.7	397.1	414.5	347.1	290.5	251.2	237.4	251.2	290.5
130°	486.8	491.9	456.7	422.2	447.8	382.2	320.9	281.5	273.5	281.5	320.9
132.5°	514.9	511.2	479.3	448.7	484.4	415.4	353.1	312.9	302.8	312.9	353.1
135°	529.2	530.4	499.9	470.8	517.8	447.5	384.4	343.8	333.7	343.8	384.4
137.5°	546.4	542.8	515.4	497.6	548.8	478.5	414.1	376.6	360.5	376.6	414.1
140°	558.9	558.3	535.6	521.4	582.2	508.8	444.5	406.4	391.5	406.4	444.5
142.5°	572.0	575.6	556.0	547.6	615.5	541.0	477.3	435.6	421.3	435.6	477.3
145°	580.9	588.7	576.2	580.4	647.1	576.8	505.9	463.6	448.1	463.6	505.9
147.5°	595.9	606.0	591.1	603.6	674.5	608.3	534.5	492.8	479.1	492.8	534.5
150°	617.0	621.8	612.8	635.8	702.5	643.5	564.6	521.7	508.0	521.7	564.6
152.5°	633.1	639.0	628.9	670.9	724.5	675.7	596.8	549.1	533.0	549.1	596.8
155°	649.8	652.2	644.1	704.9	747.7	707.3	621.5	579.5	564.0	579.5	621.5
157.5°	665.3	670.0	660.8	730.5	768.0	734.7	650.7	609.9	596.1	609.9	650.7
160°	682.0	682.0	685.8	760.3	783.7	758.5	681.7	643.2	624.2	643.2	681.7
162.5°	683.8	694.2	719.8	781.1	799.8	779.3	715.0	666.2	650.3	666.2	715.0
165°	709.9	719.2	757.9	799.5	812.3	797.8	756.1	705.5	686.7	705.5	756.1
167.5°	736.4	757.9	788.8	819.4	824.2	814.1	787.6	752.6	734.7	752.6	787.6
170°	781.1	799.5	814.1	828.1	834.7	828.7	806.3	790.0	778.6	790.0	806.3
172.5°	815.3	828.1	833.2	842.4	838.2	835.8	824.2	816.8	810.0	816.8	824.2
175°	836.4	839.8	846.0	843.0	846.6	840.0	840.7	843.9	818.5	843.9	840.7
177.5°	845.0	849.2	847.1	842.8	843.3	842.1	843.6	845.0	841.5	845.0	843.6
180°	846.0	846.0	846.0	846.0	846.0	846.0	846.0	846.0	846.0	846.0	846.0



TEST NUMBER: P392516

CATALOG NUMBER: MWL-2-22-38-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1543.9	1543.9	1543.9	1543.9	1543.9	1543.9
2.5°	1536.2	1541.4	1536.8	1541.7	1534.1	1537.5
5°	1529.8	1539.9	1529.8	1532.6	1529.6	1525.6
7.5°	1517.4	1508.0	1518.0	1522.0	1521.1	1518.1
10°	1497.7	1496.5	1498.3	1501.9	1504.7	1493.1
12.5°	1475.8	1472.5	1475.8	1484.0	1472.8	1469.7
15°	1447.0	1440.6	1447.6	1456.7	1448.2	1451.2
17.5°	1422.4	1418.8	1422.4	1423.0	1414.5	1419.3
20°	1386.2	1382.6	1386.9	1384.7	1385.9	1377.4
22.5°	1348.9	1354.4	1349.5	1346.4	1344.9	1346.7
25°	1304.2	1306.1	1304.9	1307.0	1295.7	1298.4
27.5°	1263.0	1264.2	1263.5	1260.5	1243.7	1245.6
30°	1212.9	1213.1	1214.0	1211.9	1192.7	1188.2
32.5°	1166.4	1165.5	1167.6	1152.6	1131.7	1135.3
35°	1110.2	1115.6	1112.0	1093.8	1063.7	1059.2
37.5°	1055.5	1068.0	1057.3	1020.9	996.3	992.6
40°	989.0	1006.0	990.2	947.1	926.1	937.1
42.5°	920.7	944.1	921.9	874.5	861.4	866.0
45°	846.9	879.4	848.1	799.8	797.9	810.7
47.5°	772.2	812.0	772.8	733.3	735.2	751.6
50°	692.4	727.6	693.6	665.0	683.2	691.4
52.5°	624.1	634.7	625.3	608.0	628.6	639.5
55°	549.7	533.9	550.9	549.7	573.4	577.9
57.5°	470.4	450.1	471.6	487.7	523.2	529.6
60°	394.8	384.5	395.4	424.2	463.4	470.7
62.5°	327.4	323.7	328.0	365.0	406.9	415.1
65°	270.9	278.2	271.5	302.5	344.4	358.1
67.5°	225.3	235.3	225.3	254.2	286.1	307.0
70°	185.2	196.2	185.2	208.9	231.7	254.5
72.5°	151.0	161.0	151.5	167.9	187.0	208.0
75°	120.0	131.8	120.0	130.0	146.0	168.8
77.5°	93.6	104.5	93.6	97.2	122.0	143.5
80°	69.9	79.0	69.9	77.1	110.3	126.4
82.5°	48.9	52.6	48.9	71.5	108.0	118.7
85°	37.6	30.7	38.8	74.5	113.1	120.8
87.5°	31.3	9.1	39.5	83.6	126.0	127.7
90°	20.3	1.5	43.0	97.9	139.5	140.0
92.5°	9.4	10.5	50.5	112.5	155.4	159.8
95°	3.3	24.8	62.9	128.2	172.2	174.8
97.5°	8.0	43.2	84.3	143.4	188.1	193.8
100°	20.6	65.9	110.0	163.9	201.9	207.0
102.5°	37.8	90.3	134.4	187.4	222.9	231.9
105°	61.0	118.3	160.0	217.5	248.5	256.8
107.5°	88.8	148.1	187.1	243.7	276.5	282.4
110°	117.4	179.9	213.3	269.3	305.0	312.2



TEST NUMBER: P392516

CATALOG NUMBER: MWL-2-22-38-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	148.4	212.1	240.7	293.2	335.5	340.8
115°	183.5	241.9	266.3	320.5	359.9	363.8
117.5°	215.1	277.7	292.6	341.8	386.4	387.0
120°	249.4	312.5	319.7	369.7	411.5	416.2
122.5°	283.4	344.7	344.7	393.6	433.5	436.5
125°	315.0	379.3	369.7	411.5	453.7	454.9
127.5°	347.1	414.5	397.1	434.7	473.4	471.6
130°	382.2	447.8	422.2	456.7	491.9	486.8
132.5°	415.4	484.4	448.7	479.3	511.2	514.9
135°	447.5	517.8	470.8	499.9	530.4	529.2
137.5°	478.5	548.8	497.6	515.4	542.8	546.4
140°	508.8	582.2	521.4	535.6	558.3	558.9
142.5°	541.0	615.5	547.6	556.0	575.6	572.0
145°	576.8	647.1	580.4	576.2	588.7	580.9
147.5°	608.3	674.5	603.6	591.1	606.0	595.9
150°	643.5	702.5	635.8	612.8	621.8	617.0
152.5°	675.7	724.5	670.9	628.9	639.0	633.1
155°	707.3	747.7	704.9	644.1	652.2	649.8
157.5°	734.7	768.0	730.5	660.8	670.0	665.3
160°	758.5	783.7	760.3	685.8	682.0	682.0
162.5°	779.3	799.8	781.1	719.8	694.2	683.8
165°	797.8	812.3	799.5	757.9	719.2	709.9
167.5°	814.1	824.2	819.4	788.8	757.9	736.4
170°	828.7	834.7	828.1	814.1	799.5	781.1
172.5°	835.8	838.2	842.4	833.2	828.1	815.3
175°	840.0	846.6	843.0	846.0	839.8	836.4
177.5°	842.1	843.3	842.8	847.1	849.2	845.0
180°	846.0	846.0	846.0	846.0	846.0	846.0

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