

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: P392598

Luminaire Tested: **MWL-3-37-33-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392598
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-13 &
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MWL-3-37-33-UNV-L830-EDD
Description: MWL 3FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

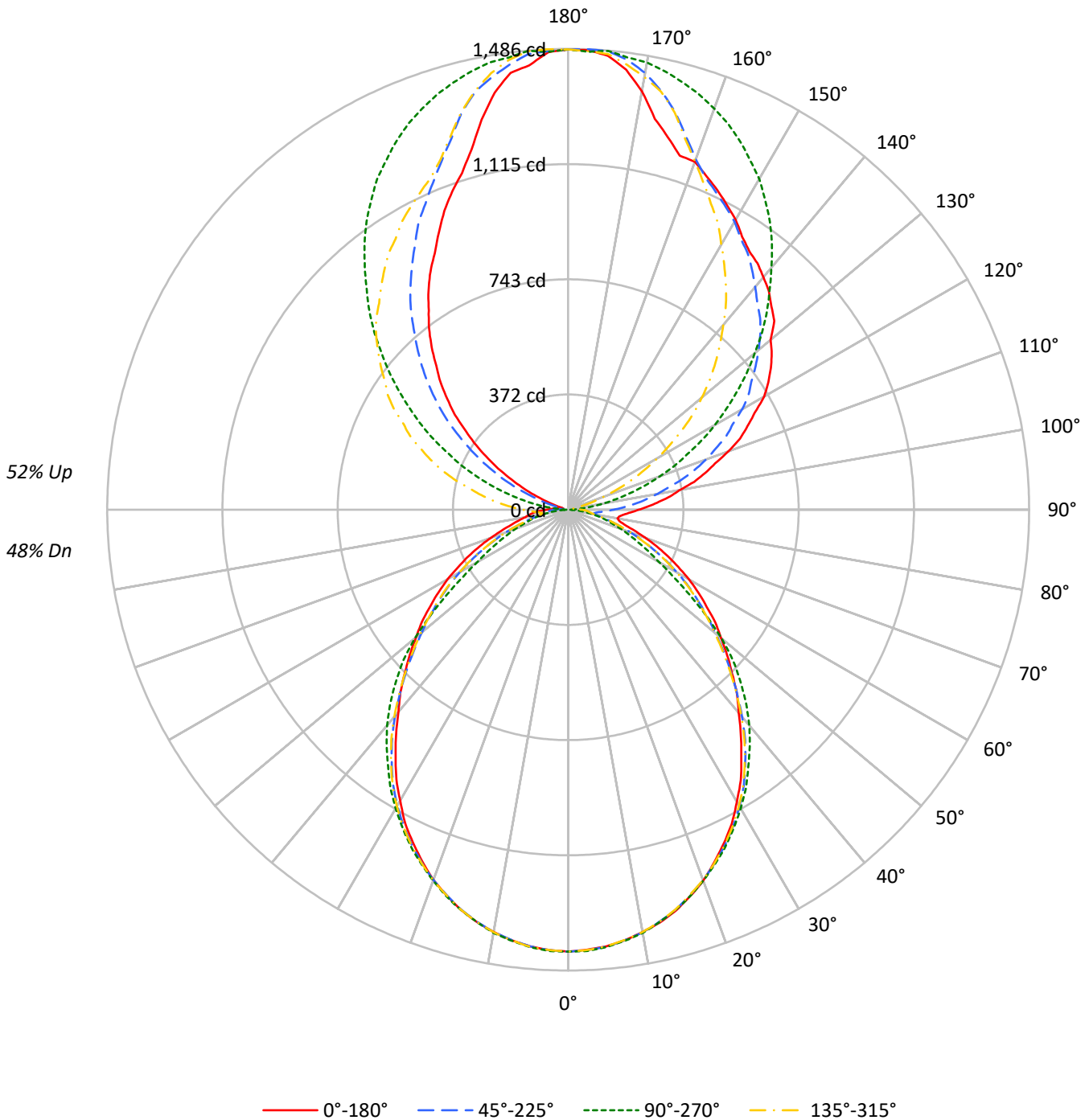
Lumens per Lamp: N/A
Luminaire Lumens: 6820.0 lumens
Efficiency: N/A
Efficacy: 95.3 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 71.6
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										
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	50	30	10	50	30	10	0														
RCR																																						
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54	48	48	48	48	48	48	48														
1	97	93	89	86	89	86	83	80	72	70	68	60	58	56	48	47	46	41	41	41	41	41	41	41														
2	89	82	76	71	82	75	70	66	64	60	57	53	50	48	43	41	39	35	35	35	35	35	35	35														
3	81	72	65	59	75	67	60	55	56	52	48	47	44	41	38	36	34	30	30	30	30	30	30	30														
4	75	64	56	50	68	59	53	47	50	45	41	42	38	35	34	32	29	26	26	26	26	26	26	26														
5	69	57	49	43	63	53	46	41	45	40	36	38	34	31	31	28	26	23	23	23	23	23	23	23														
6	63	51	43	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20	20	20	20	20	20	20														
7	59	46	39	33	54	43	36	31	37	32	28	31	27	24	26	23	20	18	18	18	18	18	18	18														
8	54	42	35	29	50	39	33	28	34	28	25	29	25	21	24	21	18	16	16	16	16	16	16	16														
9	51	39	31	26	47	36	29	25	31	26	22	26	22	19	22	19	17	15	15	15	15	15	15	15														
10	47	35	28	24	44	33	27	22	29	24	20	24	20	18	21	17	15	13	13	13	13	13	13	13														

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	12271	12271	12271	12271
5°	12070	11251	12070	11251
10°	11802	10300	11802	10300
15°	11507	9398	11480	9398
20°	11109	8554	11082	8554
25°	10593	7771	10565	7771
30°	10008	7009	9970	7009
35°	9321	6258	9291	6258
40°	8607	5547	8565	5547
45°	7992	4784	7958	4784
50°	7387	3939	7352	3939
55°	6824	2946	6798	2946
60°	6242	2138	6226	2138
65°	5565	1606	5565	1606
70°	4796	1213	4816	1213
75°	4106	878	4174	878
80°	4485	564	3933	564
85°	6873	245	4273	245



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	134.0	2.0
10°-20°	376.2	5.5
20°-30°	549.0	8.1
30°-40°	620.6	9.1
40°-50°	580.4	8.5
50°-60°	458.3	6.7
60°-70°	299.7	4.4
70°-80°	156.5	2.3
80°-90°	93.5	1.4
90°-100°	126.3	1.9
100°-110°	231.2	3.4
110°-120°	394.5	5.8
120°-130°	535.9	7.9
130°-140°	611.1	9.0
140°-150°	609.5	8.9
150°-160°	530.8	7.8
160°-170°	373.4	5.5
170°-180°	139.1	2.0
0°-30°	1059.3	15.5
0°-40°	1679.9	24.6
0°-60°	2718.5	39.9
0°-90°	3268.3	47.9
90°-120°	752.0	11.0
90°-150°	2508.5	36.8
90°-180°	3552.0	52.1
0°-180°	6820.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1425	1425	1425	1425	1425	
5°	1413	1416	1413	1416	1413	134
15°	1339	1337	1336	1337	1339	377
25°	1187	1199	1184	1199	1187	546
35°	973	1012	970	1012	973	609
45°	747	786	744	786	747	578
55°	545	476	543	476	545	489
65°	354	248	354	248	354	351
75°	187	125	190	125	187	209
85°	180	31	112	31	180	144
90°	227	2	70	2	227	125
95°	294	43	45	43	294	256
105°	457	207	16	207	457	482
115°	638	423	148	423	638	633
125°	798	664	362	664	798	712
135°	926	906	583	906	926	715
145°	1018	1134	784	1134	1018	642
155°	1137	1311	986	1311	1137	524
165°	1243	1426	1202	1426	1243	353
175°	1470	1485	1438	1485	1470	137
180°	1484	1484	1484	1484	1484	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1425.0	1425.0	1425.0	1425.0	1425.0	1425.0	1425.0	1425.0	1425.0	1425.0	1425.0
2.5°	1420.0	1423.1	1421.3	1422.3	1424.2	1421.3	1421.3	1423.1	1421.1	1423.1	1421.3
5°	1413.3	1415.4	1414.6	1414.6	1415.5	1414.6	1413.5	1415.4	1413.3	1415.4	1413.5
7.5°	1400.0	1402.9	1400.1	1402.1	1402.1	1401.0	1399.1	1402.0	1400.0	1402.0	1399.1
10°	1382.8	1385.7	1383.7	1383.7	1385.7	1382.8	1382.8	1383.6	1382.8	1383.6	1382.8
12.5°	1363.7	1363.6	1360.7	1362.6	1361.6	1362.6	1360.7	1361.6	1361.7	1361.6	1360.7
15°	1338.8	1336.7	1335.7	1336.7	1336.6	1335.7	1334.7	1334.7	1335.7	1334.7	1334.7
17.5°	1307.1	1307.9	1304.1	1306.9	1306.9	1306.9	1303.0	1307.0	1304.1	1307.0	1303.0
20°	1273.5	1272.5	1271.4	1273.3	1273.2	1272.2	1270.4	1270.5	1270.5	1270.5	1270.4
22.5°	1230.3	1233.1	1234.0	1237.7	1236.7	1236.7	1232.9	1231.1	1228.2	1231.1	1232.9
25°	1187.1	1191.9	1194.6	1200.3	1199.3	1199.3	1192.6	1188.8	1184.0	1188.8	1192.6
27.5°	1142.0	1142.9	1151.5	1160.1	1156.1	1159.0	1149.4	1139.8	1138.9	1139.8	1149.4
30°	1087.2	1092.0	1104.5	1114.0	1111.9	1112.0	1101.4	1089.0	1083.1	1089.0	1101.4
32.5°	1035.4	1037.3	1053.6	1065.1	1065.9	1063.1	1050.6	1033.2	1031.3	1033.2	1050.6
35°	972.9	977.7	995.0	1015.2	1012.1	1012.1	991.9	974.6	969.8	974.6	991.9
37.5°	914.4	917.2	936.4	961.4	961.3	958.3	933.4	914.2	911.3	914.2	933.4
40°	854.9	853.9	872.1	900.0	907.6	897.9	868.0	849.8	850.7	849.8	868.0
42.5°	804.9	793.4	805.9	836.6	849.0	834.5	802.7	789.3	800.8	789.3	802.7
45°	747.4	735.8	742.6	771.3	785.6	769.2	738.3	732.7	744.2	732.7	738.3
47.5°	695.5	681.1	680.2	701.2	721.3	700.1	675.9	678.0	692.4	678.0	675.9
50°	642.7	629.3	619.7	634.0	644.5	631.9	615.5	625.1	639.6	625.1	615.5
52.5°	597.6	579.4	563.0	566.8	559.0	564.7	559.8	575.2	594.4	575.2	559.8
55°	544.7	533.2	510.2	497.6	476.4	495.5	507.0	530.0	542.6	530.0	507.0
57.5°	497.7	487.1	459.3	429.4	399.6	427.3	456.1	484.0	495.6	484.0	456.1
60°	449.6	439.0	405.4	362.2	339.1	361.1	403.3	436.9	448.5	436.9	403.3
62.5°	399.7	393.0	354.6	305.5	292.0	304.5	352.5	390.9	398.6	390.9	352.5
65°	354.5	343.0	303.6	256.6	247.8	255.5	302.5	341.9	354.5	341.9	302.5
67.5°	308.4	294.0	256.6	213.3	212.3	213.3	255.5	293.0	308.4	293.0	255.5
70°	263.2	246.9	212.3	176.8	180.6	176.8	212.3	247.9	264.3	247.9	212.3
72.5°	223.8	201.8	173.9	145.1	148.9	144.1	173.9	202.8	226.0	202.8	173.9
75°	187.4	162.4	138.3	116.2	124.9	116.2	139.4	163.5	190.5	163.5	139.4
77.5°	168.8	136.9	106.6	91.3	99.9	91.3	107.7	133.7	164.7	133.7	107.7
80°	161.7	128.4	86.8	70.2	75.9	70.2	84.7	111.7	141.8	111.7	84.7
82.5°	165.8	133.3	84.0	50.0	53.8	50.0	71.4	95.6	125.9	95.6	71.4
85°	180.0	151.3	95.5	40.7	30.8	38.6	65.1	87.3	111.9	87.3	65.1
87.5°	200.5	178.5	117.3	47.7	8.6	33.1	57.5	77.9	92.5	77.9	57.5
90°	226.9	208.8	146.4	62.1	2.0	22.3	42.6	61.0	69.7	61.0	42.6
92.5°	260.6	244.2	178.4	85.9	17.8	13.6	34.8	50.3	55.2	50.3	34.8
95°	293.8	285.6	215.8	111.9	42.9	7.1	27.2	42.4	45.4	42.4	27.2
97.5°	332.2	324.1	252.3	147.7	75.3	13.5	20.7	35.9	38.8	35.9	20.7
100°	364.5	359.6	291.8	192.7	115.2	35.5	14.0	30.4	34.3	30.4	14.0
102.5°	415.6	399.2	330.0	235.7	158.2	65.9	17.7	21.8	25.6	21.8	17.7
105°	457.3	437.8	381.4	280.9	207.4	106.8	42.8	16.4	15.9	16.4	42.8
107.5°	496.5	485.1	427.5	326.9	259.8	154.0	78.4	40.7	27.0	40.7	78.4
110°	548.9	535.4	472.5	373.1	314.4	204.4	119.3	74.2	58.5	74.2	119.3



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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°	599.3	588.9	514.5	421.3	371.0	258.8	169.6	116.1	101.4	116.1	169.6
115°	638.1	631.9	562.7	466.4	423.4	320.7	225.2	165.5	147.5	165.5	225.2
117.5°	678.0	677.0	598.4	512.5	486.3	376.2	276.5	214.7	194.8	214.7	276.5
120°	729.4	721.0	647.6	558.6	546.0	434.9	333.2	271.3	251.4	271.3	333.2
122.5°	765.0	759.7	689.6	603.6	603.6	495.6	387.7	325.8	304.9	325.8	387.7
125°	797.5	795.4	721.0	647.6	664.4	551.2	448.4	385.6	362.5	385.6	448.4
127.5°	826.8	830.0	761.8	695.8	726.2	607.8	508.2	439.0	414.9	439.0	508.2
130°	852.0	862.4	800.6	739.9	784.9	669.6	561.6	492.5	476.8	492.5	561.6
132.5°	901.2	895.0	840.5	784.9	847.8	726.2	618.2	546.0	528.1	546.0	618.2
135°	926.5	928.5	875.0	823.7	906.5	782.9	671.7	600.4	582.6	600.4	671.7
137.5°	956.8	950.6	902.3	870.9	961.0	837.3	724.1	658.1	629.8	658.1	724.1
140°	978.9	977.8	938.0	912.8	1019.7	890.8	777.6	710.5	684.3	710.5	777.6
142.5°	1001.9	1008.1	973.6	958.9	1078.4	947.4	835.3	761.8	736.7	761.8	835.3
145°	1017.6	1031.3	1009.2	1016.6	1134.0	1010.3	885.6	811.1	783.8	811.1	885.6
147.5°	1043.9	1061.6	1035.4	1057.5	1182.2	1065.8	935.9	862.4	838.3	862.4	935.9
150°	1079.5	1087.8	1072.1	1114.0	1231.4	1127.6	987.2	911.8	887.7	911.8	987.2
152.5°	1107.8	1118.2	1100.4	1175.9	1270.2	1184.3	1043.9	960.0	931.6	960.0	1043.9
155°	1137.2	1141.3	1128.7	1235.6	1311.1	1239.9	1088.9	1013.4	986.2	1013.4	1088.9
157.5°	1164.3	1172.8	1158.1	1280.7	1346.8	1288.0	1140.2	1066.9	1042.8	1066.9	1140.2
160°	1193.7	1193.7	1202.1	1333.2	1376.1	1330.0	1194.7	1125.5	1092.0	1125.5	1194.7
162.5°	1196.9	1216.7	1261.8	1369.8	1404.4	1366.7	1253.5	1167.5	1138.1	1167.5	1253.5
165°	1242.9	1260.8	1328.9	1402.3	1426.4	1399.2	1325.8	1236.7	1202.1	1236.7	1325.8
167.5°	1291.2	1328.9	1383.5	1439.0	1447.4	1429.5	1381.3	1319.5	1288.0	1319.5	1381.3
170°	1369.8	1402.3	1429.5	1452.7	1464.2	1453.6	1415.9	1385.6	1365.6	1385.6	1415.9
172.5°	1430.7	1452.7	1463.1	1477.8	1470.4	1466.2	1447.4	1432.7	1421.3	1432.7	1447.4
175°	1469.5	1474.6	1484.0	1478.9	1485.1	1473.6	1474.6	1481.9	1438.1	1481.9	1474.6
177.5°	1483.1	1491.4	1486.2	1476.8	1477.8	1475.7	1479.8	1484.0	1476.8	1484.0	1479.8
180°	1484.0	1484.0	1484.0	1484.0	1484.0	1484.0	1484.0	1484.0	1484.0	1484.0	1484.0



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1425.0	1425.0	1425.0	1425.0	1425.0	1425.0
2.5°	1421.3	1424.2	1422.3	1421.3	1423.1	1420.0
5°	1414.6	1415.5	1414.6	1414.6	1415.4	1413.3
7.5°	1401.0	1402.1	1402.1	1400.1	1402.9	1400.0
10°	1382.8	1385.7	1383.7	1383.7	1385.7	1382.8
12.5°	1362.6	1361.6	1362.6	1360.7	1363.6	1363.7
15°	1335.7	1336.6	1336.7	1335.7	1336.7	1338.8
17.5°	1306.9	1306.9	1306.9	1304.1	1307.9	1307.1
20°	1272.2	1273.2	1273.3	1271.4	1272.5	1273.5
22.5°	1236.7	1236.7	1237.7	1234.0	1233.1	1230.3
25°	1199.3	1199.3	1200.3	1194.6	1191.9	1187.1
27.5°	1159.0	1156.1	1160.1	1151.5	1142.9	1142.0
30°	1112.0	1111.9	1114.0	1104.5	1092.0	1087.2
32.5°	1063.1	1065.9	1065.1	1053.6	1037.3	1035.4
35°	1012.1	1012.1	1015.2	995.0	977.7	972.9
37.5°	958.3	961.3	961.4	936.4	917.2	914.4
40°	897.9	907.6	900.0	872.1	853.9	854.9
42.5°	834.5	849.0	836.6	805.9	793.4	804.9
45°	769.2	785.6	771.3	742.6	735.8	747.4
47.5°	700.1	721.3	701.2	680.2	681.1	695.5
50°	631.9	644.5	634.0	619.7	629.3	642.7
52.5°	564.7	559.0	566.8	563.0	579.4	597.6
55°	495.5	476.4	497.6	510.2	533.2	544.7
57.5°	427.3	399.6	429.4	459.3	487.1	497.7
60°	361.1	339.1	362.2	405.4	439.0	449.6
62.5°	304.5	292.0	305.5	354.6	393.0	399.7
65°	255.5	247.8	256.6	303.6	343.0	354.5
67.5°	213.3	212.3	213.3	256.6	294.0	308.4
70°	176.8	180.6	176.8	212.3	246.9	263.2
72.5°	144.1	148.9	145.1	173.9	201.8	223.8
75°	116.2	124.9	116.2	138.3	162.4	187.4
77.5°	91.3	99.9	91.3	106.6	136.9	168.8
80°	70.2	75.9	70.2	86.8	128.4	161.7
82.5°	50.0	53.8	50.0	84.0	133.3	165.8
85°	38.6	30.8	40.7	95.5	151.3	180.0
87.5°	33.1	8.6	47.7	117.3	178.5	200.5
90°	22.3	2.0	62.1	146.4	208.8	226.9
92.5°	13.6	17.8	85.9	178.4	244.2	260.6
95°	7.1	42.9	111.9	215.8	285.6	293.8
97.5°	13.5	75.3	147.7	252.3	324.1	332.2
100°	35.5	115.2	192.7	291.8	359.6	364.5
102.5°	65.9	158.2	235.7	330.0	399.2	415.6
105°	106.8	207.4	280.9	381.4	437.8	457.3
107.5°	154.0	259.8	326.9	427.5	485.1	496.5
110°	204.4	314.4	373.1	472.5	535.4	548.9



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CATALOG NUMBER: MWL-3-37-33-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	258.8	371.0	421.3	514.5	588.9	599.3
115°	320.7	423.4	466.4	562.7	631.9	638.1
117.5°	376.2	486.3	512.5	598.4	677.0	678.0
120°	434.9	546.0	558.6	647.6	721.0	729.4
122.5°	495.6	603.6	603.6	689.6	759.7	765.0
125°	551.2	664.4	647.6	721.0	795.4	797.5
127.5°	607.8	726.2	695.8	761.8	830.0	826.8
130°	669.6	784.9	739.9	800.6	862.4	852.0
132.5°	726.2	847.8	784.9	840.5	895.0	901.2
135°	782.9	906.5	823.7	875.0	928.5	926.5
137.5°	837.3	961.0	870.9	902.3	950.6	956.8
140°	890.8	1019.7	912.8	938.0	977.8	978.9
142.5°	947.4	1078.4	958.9	973.6	1008.1	1001.9
145°	1010.3	1134.0	1016.6	1009.2	1031.3	1017.6
147.5°	1065.8	1182.2	1057.5	1035.4	1061.6	1043.9
150°	1127.6	1231.4	1114.0	1072.1	1087.8	1079.5
152.5°	1184.3	1270.2	1175.9	1100.4	1118.2	1107.8
155°	1239.9	1311.1	1235.6	1128.7	1141.3	1137.2
157.5°	1288.0	1346.8	1280.7	1158.1	1172.8	1164.3
160°	1330.0	1376.1	1333.2	1202.1	1193.7	1193.7
162.5°	1366.7	1404.4	1369.8	1261.8	1216.7	1196.9
165°	1399.2	1426.4	1402.3	1328.9	1260.8	1242.9
167.5°	1429.5	1447.4	1439.0	1383.5	1328.9	1291.2
170°	1453.6	1464.2	1452.7	1429.5	1402.3	1369.8
172.5°	1466.2	1470.4	1477.8	1463.1	1452.7	1430.7
175°	1473.6	1485.1	1478.9	1484.0	1474.6	1469.5
177.5°	1475.7	1477.8	1476.8	1486.2	1491.4	1483.1
180°	1484.0	1484.0	1484.0	1484.0	1484.0	1484.0

(END OF REPORT)