

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: P188256

Luminaire Tested: **MPBL-3-LD4-UNV-2LO-2LO-40**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P188256
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27373)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MPBL-3-LD4-UNV-2LO-2LO-40
Description:
Light Source: (336) NICHIA ELM 4000K LED
2UT217042A8404A
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7824.0 lumens
Efficiency: N/A
Efficacy: 97.1 lumens/watt
Spacing Criteria (0/90/45): 1.22 / 1.18 / 1.33
Luminous Opening: Rectangular w/ Sides (W: 3' x L: 0.42' x H: 0.29')
CIE Type: General Diffuse

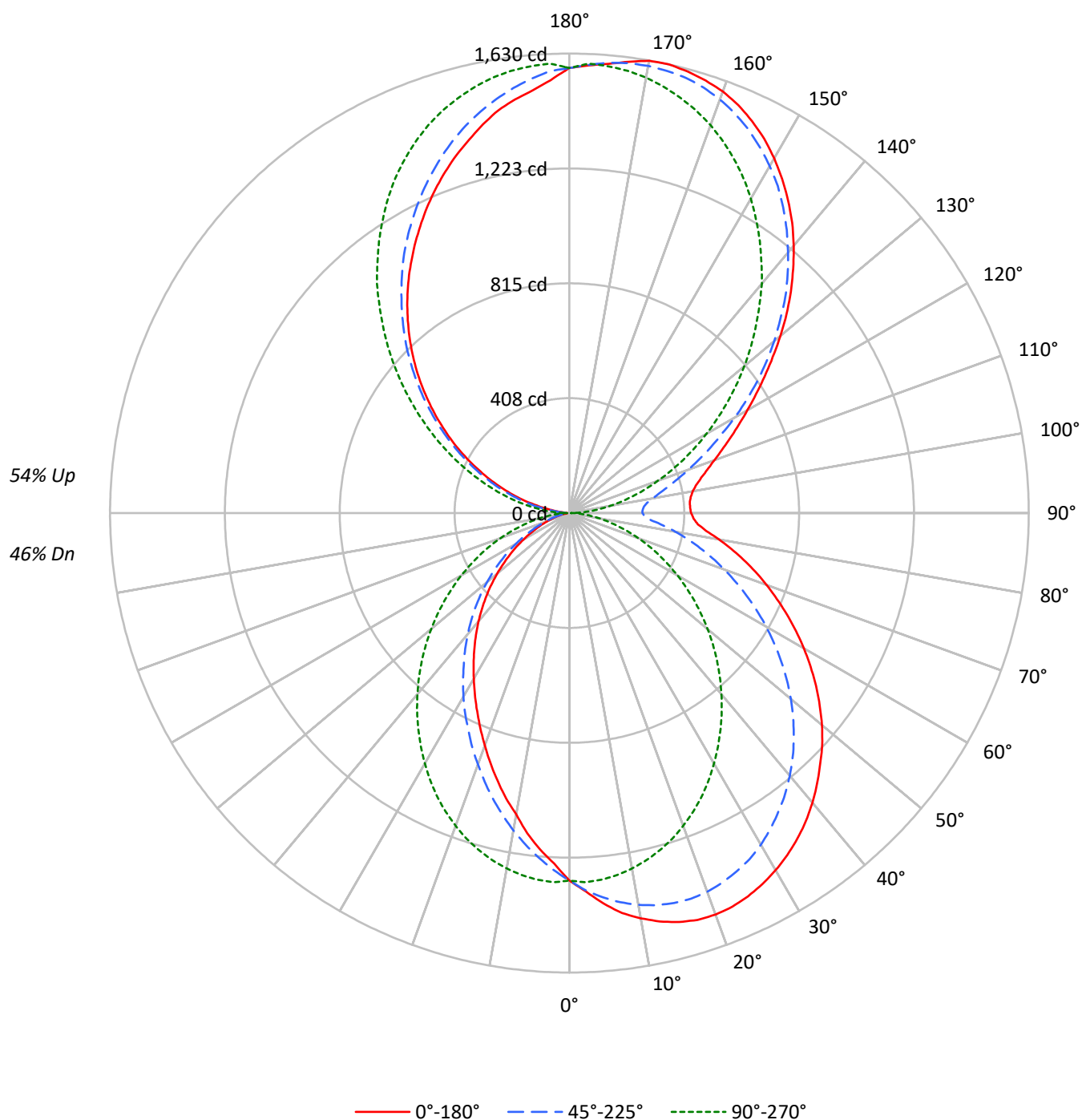
Input Watts (W): 80.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P188256

CATALOG NUMBER: MPBL-3-LD4-UNV-2LO-2LO-40

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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	106	106	106	106	98	98	98	98	81	81	81		66	66	66		53
1	96	92	88	84	88	84	81	78	70	68	65		57	56	54		46
2	88	80	74	68	80	73	68	63	61	57	54		50	47	45		40
3	80	70	63	57	73	64	58	53	54	49	45		44	41	38		35
4	73	62	54	48	67	57	50	45	48	43	38		39	35	32		31
5	67	55	47	41	61	51	44	38	43	37	33		35	31	28		28
6	62	49	41	35	56	46	38	33	38	33	29		32	28	24		26
7	57	45	37	31	52	41	34	29	35	29	25		29	25	21		23
8	53	40	33	27	48	37	30	26	32	26	22		26	22	19		21
9	49	37	29	24	45	34	27	23	29	24	20		24	20	17		20
10	46	34	27	22	42	31	25	20	27	22	18		22	18	15		18

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11225	11225	11225
5°	11328	11189	9754
10°	11361	11007	8447
15°	11274	10760	7388
20°	11070	10453	6412
25°	10744	10086	5551
30°	10362	9661	4805
35°	9949	9200	4147
40°	9499	8720	3549
45°	9015	8215	2983
50°	8542	7686	2445
55°	8020	7121	1941
60°	7480	6525	1471
65°	6939	5891	1048
70°	6407	5160	693
75°	5891	4345	404
80°	5378	3411	183
85°	5020	2340	80



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	123.1	1.6
10°-20°	349.1	4.5
20°-30°	517.5	6.6
30°-40°	606.7	7.8
40°-50°	612.4	7.8
50°-60°	541.4	6.9
60°-70°	418.2	5.3
70°-80°	279.6	3.6
80°-90°	166.0	2.1
90°-100°	166.1	2.1
100°-110°	291.7	3.7
110°-120°	460.9	5.9
120°-130°	622.3	8.0
130°-140°	727.2	9.3
140°-150°	735.2	9.4
150°-160°	631.6	8.1
160°-170°	425.4	5.4
170°-180°	149.4	1.9
0°-30°	989.8	12.7
0°-40°	1596.5	20.4
0°-60°	2750.3	35.2
0°-90°	3614.1	46.2
90°-120°	918.7	11.7
90°-150°	3003.5	38.4
90°-180°	4210.0	53.8
0°-180°	7824.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1304	1304	1304	1304	1304	
5°	1391	1369	1305	1229	1198	135
15°	1502	1432	1238	1049	984	425
25°	1500	1403	1110	848	775	692
35°	1410	1293	935	654	588	883
45°	1258	1126	740	470	416	972
55°	1068	918	540	298	258	955
65°	852	694	349	151	129	844
75°	640	480	178	53	44	676
85°	457	291	50	8	7	391
90°	432	259	6	10	12	237
95°	429	265	73	23	15	354
105°	484	363	235	179	156	516
115°	629	554	444	368	348	626
125°	846	812	684	584	563	759
135°	1111	1084	935	812	785	857
145°	1353	1323	1177	1036	997	846
155°	1534	1502	1384	1244	1196	706
165°	1621	1598	1524	1422	1372	458
175°	1599	1604	1591	1547	1504	154
180°	1579	1579	1579	1579	1579	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6
2.5°	1343.8	1340.8	1343.2	1343.8	1347.5	1349.3	1348.1	1350.5	1349.3	1344.4	1340.2
5°	1390.8	1388.3	1388.3	1389.0	1388.3	1388.3	1385.9	1385.9	1382.2	1374.9	1368.8
7.5°	1431.0	1429.2	1428.0	1425.5	1424.9	1423.7	1420.7	1417.6	1411.5	1401.8	1392.6
10°	1459.7	1458.5	1457.9	1456.0	1453.0	1451.1	1448.1	1443.2	1434.7	1423.1	1411.5
12.5°	1484.1	1482.2	1481.0	1478.0	1474.9	1472.5	1469.4	1462.7	1453.0	1439.0	1424.9
15°	1501.8	1500.5	1499.3	1495.7	1491.4	1489.6	1485.9	1477.4	1464.6	1449.3	1432.2
17.5°	1513.3	1511.5	1509.7	1506.0	1501.8	1498.7	1495.0	1484.7	1471.3	1453.6	1434.7
20°	1515.8	1513.9	1512.1	1507.8	1503.0	1499.3	1495.0	1483.5	1468.8	1451.1	1429.8
22.5°	1511.5	1509.7	1506.6	1502.4	1495.7	1491.4	1487.1	1474.9	1459.7	1441.4	1418.8
25°	1499.9	1498.7	1495.0	1490.8	1483.5	1479.2	1474.9	1461.5	1445.7	1426.8	1403.0
27.5°	1483.5	1482.9	1479.2	1473.7	1467.0	1463.9	1458.5	1444.4	1428.0	1408.5	1384.1
30°	1463.3	1462.7	1458.5	1453.0	1445.0	1441.4	1435.9	1421.9	1404.2	1384.1	1358.5
32.5°	1438.3	1438.3	1434.1	1427.4	1418.2	1414.6	1408.5	1393.8	1374.9	1354.2	1328.0
35°	1410.3	1409.7	1405.4	1398.7	1387.7	1383.5	1377.4	1360.3	1342.0	1320.7	1293.2
37.5°	1378.0	1377.4	1373.1	1365.2	1354.2	1349.9	1343.2	1325.5	1306.6	1284.7	1257.3
40°	1341.4	1340.8	1336.5	1328.6	1316.4	1314.0	1304.8	1286.5	1267.0	1245.1	1216.4
42.5°	1301.2	1301.2	1296.3	1287.7	1277.4	1272.5	1262.7	1244.4	1224.3	1201.8	1173.1
45°	1258.5	1258.5	1253.6	1245.1	1233.5	1228.0	1218.2	1199.3	1178.6	1155.4	1126.2
47.5°	1217.0	1212.1	1208.5	1198.7	1188.4	1181.0	1170.7	1152.4	1130.4	1106.0	1076.8
50°	1169.5	1164.0	1157.9	1150.6	1139.6	1131.6	1120.7	1101.8	1080.4	1054.8	1026.2
52.5°	1119.5	1114.6	1108.5	1098.7	1085.9	1080.4	1068.8	1050.6	1028.6	1001.8	972.5
55°	1068.2	1062.8	1057.9	1046.9	1035.9	1028.0	1015.8	997.5	975.6	947.5	917.6
57.5°	1014.6	1009.7	1003.6	995.7	982.3	973.7	961.5	942.0	919.5	892.0	862.2
60°	960.9	955.4	949.3	940.8	927.4	918.9	906.7	885.9	863.4	835.9	806.1
62.5°	906.1	901.2	895.1	883.5	872.5	863.4	853.6	830.4	807.9	779.8	750.0
65°	851.8	846.3	840.8	829.2	817.6	808.5	798.7	775.6	752.4	724.4	693.9
67.5°	796.9	792.6	785.9	774.4	759.7	753.6	743.9	720.7	697.5	668.9	639.0
70°	743.9	739.6	732.9	721.3	707.3	700.0	690.2	666.4	643.3	615.2	584.7
72.5°	691.4	687.8	680.5	668.3	655.5	647.5	638.4	616.4	590.2	560.9	532.3
75°	639.6	634.1	628.6	616.4	603.6	595.1	584.7	564.0	538.4	509.7	480.5
77.5°	588.4	585.3	577.4	565.2	552.4	543.9	535.9	513.4	487.2	457.9	429.9
80°	539.0	535.3	527.4	515.2	501.8	493.9	484.7	463.4	437.8	409.1	381.7
82.5°	490.2	487.2	479.2	467.0	453.6	445.7	436.6	414.6	389.6	361.6	334.7
85°	457.3	453.0	446.3	434.7	418.9	409.1	399.4	375.6	348.2	319.5	290.8
87.5°	440.8	437.8	429.9	418.3	401.2	391.4	380.5	356.1	328.0	298.2	267.1
90°	431.7	428.6	421.3	409.1	392.1	382.3	371.9	346.9	319.5	290.8	259.1
92.5°	428.6	426.2	418.9	406.7	390.2	379.9	369.5	345.1	318.3	289.6	259.7
95°	428.6	426.2	419.5	407.3	390.8	381.7	371.3	347.5	321.9	293.9	265.2
97.5°	434.1	431.7	424.4	413.4	396.9	388.4	378.0	355.5	331.1	304.9	278.0
100°	444.5	442.7	436.0	425.0	409.1	401.2	391.4	370.1	346.9	324.4	299.4
102.5°	461.0	459.7	452.4	442.7	428.0	420.7	412.8	392.7	371.3	350.6	328.0
105°	484.1	482.9	476.8	467.0	453.6	447.5	439.6	420.7	402.4	382.9	362.8
107.5°	512.8	511.6	504.9	496.9	484.7	479.2	472.5	454.9	438.4	421.3	403.0
110°	546.3	545.7	539.0	532.3	520.7	516.4	510.3	494.5	480.5	464.6	448.8



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	585.3	584.7	578.0	572.5	561.6	558.5	552.4	539.0	526.8	512.8	498.8
115°	629.2	628.6	621.9	617.7	609.7	604.8	601.8	590.2	577.4	565.2	554.2
117.5°	676.8	676.2	670.7	667.0	659.1	656.1	651.2	640.8	632.9	622.5	610.3
120°	729.2	729.2	723.1	720.7	714.6	711.5	707.9	701.2	692.0	684.1	677.4
122.5°	785.3	785.3	779.8	775.0	773.1	770.7	770.1	762.2	755.4	749.4	743.9
125°	845.7	845.1	840.2	835.9	834.7	834.1	834.1	828.6	823.1	817.0	812.2
127.5°	909.7	909.1	904.8	901.2	901.8	901.2	902.4	893.9	891.4	885.9	880.4
130°	976.8	976.8	972.5	968.9	969.5	969.5	970.1	962.1	959.7	953.6	948.7
132.5°	1045.1	1041.4	1040.8	1037.1	1037.1	1037.8	1037.8	1030.4	1028.0	1021.3	1014.0
135°	1110.9	1110.9	1107.9	1103.6	1103.6	1103.6	1104.2	1096.9	1094.5	1089.0	1083.5
137.5°	1174.9	1173.1	1172.5	1168.2	1168.8	1167.6	1165.8	1161.5	1159.1	1153.0	1146.3
140°	1238.4	1235.9	1235.3	1231.6	1231.0	1229.8	1228.0	1223.7	1220.1	1213.4	1206.6
142.5°	1298.7	1295.1	1294.4	1290.8	1289.6	1288.3	1286.5	1282.3	1279.2	1272.5	1266.4
145°	1353.0	1351.2	1349.9	1346.3	1345.7	1345.1	1343.2	1339.0	1335.9	1329.8	1323.1
147.5°	1404.8	1402.4	1402.4	1399.3	1398.7	1397.5	1399.3	1393.2	1389.6	1382.9	1375.5
150°	1453.0	1450.5	1449.3	1446.3	1445.7	1443.8	1445.0	1439.0	1434.7	1429.2	1421.3
152.5°	1496.9	1495.0	1492.6	1488.9	1487.1	1485.9	1486.5	1479.8	1474.9	1470.7	1463.3
155°	1533.5	1531.6	1530.4	1527.4	1526.1	1524.3	1525.5	1519.4	1515.8	1509.1	1501.8
157.5°	1566.4	1564.6	1560.9	1560.3	1558.5	1557.8	1556.6	1553.0	1546.9	1542.6	1534.1
160°	1591.4	1589.6	1587.1	1585.3	1584.1	1582.8	1581.6	1577.4	1573.7	1568.8	1561.5
162.5°	1608.5	1606.6	1604.8	1603.0	1601.7	1601.1	1599.9	1596.9	1593.8	1588.9	1582.8
165°	1621.3	1620.0	1617.6	1615.8	1615.2	1615.2	1614.6	1610.9	1607.8	1604.2	1598.1
167.5°	1630.4	1628.6	1625.5	1623.7	1622.5	1622.5	1620.6	1618.2	1614.6	1611.5	1606.0
170°	1629.2	1626.1	1623.7	1622.5	1620.6	1620.6	1619.4	1618.2	1615.8	1613.9	1610.3
172.5°	1614.6	1612.1	1611.5	1611.5	1612.1	1613.9	1613.9	1613.9	1612.7	1612.7	1609.7
175°	1599.3	1597.5	1598.1	1599.3	1601.1	1603.6	1603.6	1605.4	1604.2	1604.8	1603.6
177.5°	1589.6	1586.5	1586.5	1585.9	1586.5	1588.3	1587.7	1590.2	1590.2	1591.4	1591.4
180°	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6
2.5°	1337.7	1333.5	1327.4	1320.1	1317.0	1315.2	1312.1	1312.1	1311.5	1310.9	1307.3
5°	1362.7	1355.4	1346.3	1335.3	1330.4	1326.2	1319.4	1315.2	1310.3	1305.4	1296.9
7.5°	1383.5	1372.5	1360.3	1345.1	1338.3	1332.2	1321.3	1313.3	1304.2	1295.7	1282.9
10°	1399.3	1385.3	1368.8	1351.2	1342.0	1333.5	1318.8	1307.3	1293.2	1280.4	1264.0
12.5°	1410.3	1393.8	1373.7	1351.8	1341.4	1330.4	1311.5	1295.7	1278.0	1261.5	1241.4
15°	1415.2	1395.7	1373.1	1347.5	1335.9	1323.1	1300.5	1281.0	1259.1	1238.4	1213.4
17.5°	1414.6	1392.0	1366.4	1338.3	1324.9	1309.7	1284.7	1261.5	1236.5	1211.5	1183.5
20°	1408.5	1382.9	1355.4	1324.9	1309.7	1292.6	1264.0	1237.1	1207.9	1181.0	1149.9
22.5°	1395.7	1368.8	1339.0	1306.0	1289.6	1271.9	1239.6	1210.3	1176.8	1146.9	1112.7
25°	1378.6	1351.2	1318.2	1283.5	1265.8	1246.3	1212.1	1178.6	1142.6	1109.7	1073.1
27.5°	1357.2	1328.0	1292.6	1256.0	1237.1	1217.0	1180.4	1144.5	1104.8	1069.5	1031.0
30°	1330.4	1300.5	1263.3	1224.9	1205.4	1184.1	1145.1	1106.7	1064.6	1026.2	986.5
32.5°	1298.7	1267.0	1230.4	1190.2	1169.5	1147.5	1107.3	1066.4	1021.3	981.0	940.2
35°	1263.3	1231.0	1193.8	1151.8	1131.0	1107.9	1065.2	1021.9	976.8	934.7	892.6
37.5°	1226.2	1192.6	1154.8	1111.5	1090.2	1068.8	1022.5	978.0	930.4	887.8	844.5
40°	1184.7	1150.6	1111.5	1068.2	1046.3	1024.3	978.6	931.0	882.9	839.0	795.7
42.5°	1140.8	1106.0	1066.4	1022.5	1000.6	978.0	931.7	885.9	836.5	790.2	746.3
45°	1093.2	1058.5	1019.5	974.3	952.4	926.8	881.1	834.1	787.2	740.2	696.9
47.5°	1045.7	1009.1	969.5	923.7	901.8	878.6	831.7	784.1	736.5	690.2	646.9
50°	994.5	954.8	917.6	871.9	850.0	826.8	779.8	731.1	685.9	640.2	597.5
52.5°	940.8	902.4	862.8	818.3	796.9	776.2	725.6	679.8	634.7	589.6	548.8
55°	886.5	848.1	809.1	764.6	743.3	722.5	673.1	629.2	584.1	540.2	500.0
57.5°	830.4	792.0	755.4	709.7	688.4	668.3	621.9	576.2	532.9	490.8	451.8
60°	774.4	735.9	700.0	654.8	634.1	614.6	566.4	524.4	483.5	442.7	404.9
62.5°	718.3	680.5	642.0	603.0	579.8	560.9	517.0	473.8	434.7	394.5	359.1
65°	662.8	625.6	587.8	546.3	526.8	509.1	466.4	425.0	388.4	349.4	314.0
67.5°	607.9	570.7	533.5	496.3	475.0	457.9	418.9	378.6	339.6	303.6	270.7
70°	552.4	520.1	481.7	445.7	426.8	406.1	367.7	332.3	295.1	259.7	228.6
72.5°	500.6	468.3	430.5	396.3	375.0	357.9	320.7	286.0	252.4	217.7	189.0
75°	450.0	417.7	380.5	346.3	327.4	311.0	275.6	241.5	209.7	178.0	151.8
77.5°	399.4	368.3	332.9	301.2	282.3	265.2	231.7	200.6	169.5	140.2	118.3
80°	351.2	320.7	286.0	256.1	237.8	221.9	190.2	161.0	132.9	106.7	86.6
82.5°	304.9	275.6	242.1	214.0	195.7	181.7	151.8	125.0	99.4	76.2	58.5
85°	262.2	232.9	201.2	173.2	157.3	144.5	116.5	92.7	70.7	50.0	32.3
87.5°	234.7	202.4	170.1	139.6	123.8	111.0	85.4	64.0	44.5	26.2	12.2
90°	228.0	195.7	163.4	131.7	117.1	101.8	73.8	47.6	23.8	5.5	5.5
92.5°	229.3	198.8	167.7	137.8	123.8	111.0	84.8	62.8	43.9	37.2	32.3
95°	236.0	207.3	179.3	151.8	138.4	128.0	104.9	87.8	76.2	72.6	67.1
97.5°	251.2	225.6	198.8	175.0	162.8	154.9	134.1	121.9	113.4	107.3	101.8
100°	275.0	251.8	228.6	205.5	195.1	188.4	171.3	162.8	154.3	146.9	140.2
102.5°	305.5	284.7	262.2	242.7	232.9	228.6	214.6	206.7	197.6	189.6	182.3
105°	342.7	323.8	304.9	286.6	277.4	275.6	264.6	253.6	243.9	234.7	226.8
107.5°	384.7	368.3	348.8	335.3	328.0	326.8	315.2	303.6	292.7	283.5	273.8
110°	432.3	418.3	401.2	389.6	382.3	381.1	367.1	357.3	345.1	334.1	323.8



TEST NUMBER: P188256

CATALOG NUMBER: MPBL-3-LD4-UNV-2LO-2LO-40

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	484.1	472.5	457.3	446.9	439.6	437.8	425.6	412.8	398.8	387.2	378.6
115°	541.4	531.7	517.7	506.7	500.0	497.5	484.7	470.7	458.5	443.9	433.5
117.5°	602.4	595.1	581.1	568.9	561.6	559.1	545.7	531.1	516.4	501.2	490.2
120°	668.3	660.3	645.7	633.5	625.6	623.1	608.5	592.7	577.4	560.9	548.8
122.5°	734.7	726.8	711.5	698.7	691.4	687.8	672.5	655.5	639.0	621.3	607.9
125°	802.4	794.5	778.6	764.6	757.3	753.0	737.8	718.9	701.2	683.5	668.3
127.5°	870.7	862.2	846.3	832.3	824.3	819.5	803.6	782.9	764.6	746.3	729.8
130°	938.4	926.8	913.4	898.7	890.8	886.5	869.5	848.1	829.2	809.7	792.0
132.5°	1003.0	994.5	981.0	965.8	957.9	952.4	932.3	912.8	893.2	873.1	851.2
135°	1072.5	1060.9	1046.9	1031.0	1022.5	1017.0	999.3	976.2	956.0	935.3	913.4
137.5°	1132.9	1123.7	1110.3	1094.5	1085.3	1077.4	1059.7	1039.0	1018.9	997.5	975.6
140°	1193.8	1184.7	1171.3	1155.4	1149.3	1139.0	1121.9	1101.2	1081.0	1062.1	1037.1
142.5°	1252.4	1243.2	1229.8	1214.0	1206.0	1198.1	1181.6	1160.9	1141.4	1118.8	1096.9
145°	1309.7	1299.9	1285.9	1270.7	1262.1	1254.8	1238.4	1218.2	1199.3	1177.4	1155.4
147.5°	1362.1	1351.8	1338.3	1323.1	1315.2	1308.5	1292.6	1273.1	1255.4	1232.9	1211.5
150°	1409.1	1399.3	1385.9	1372.5	1366.4	1358.5	1343.8	1324.9	1307.9	1287.7	1265.2
152.5°	1451.1	1441.4	1427.4	1417.0	1411.5	1404.8	1390.2	1373.1	1357.2	1338.3	1316.4
155°	1489.6	1479.8	1468.2	1456.6	1451.8	1446.3	1432.9	1417.0	1402.4	1384.1	1363.3
157.5°	1522.5	1512.7	1499.9	1491.4	1488.3	1482.9	1470.7	1456.0	1443.8	1426.1	1407.9
160°	1550.5	1541.4	1531.6	1522.5	1520.0	1515.2	1504.2	1491.4	1480.4	1463.9	1446.9
162.5°	1573.1	1563.9	1554.2	1547.5	1546.3	1542.0	1531.6	1521.3	1511.5	1496.9	1481.0
165°	1589.6	1580.4	1572.5	1567.0	1565.8	1563.9	1554.2	1545.0	1537.1	1524.3	1510.9
167.5°	1599.3	1591.4	1585.3	1581.6	1581.6	1580.4	1572.5	1565.8	1559.7	1548.7	1537.1
170°	1604.2	1598.1	1593.8	1591.4	1592.0	1592.0	1586.5	1581.0	1576.7	1568.2	1559.1
172.5°	1604.2	1599.3	1596.9	1596.3	1596.9	1597.5	1593.8	1590.8	1588.3	1582.2	1574.3
175°	1599.3	1596.3	1595.0	1595.7	1597.5	1598.7	1596.9	1595.7	1595.7	1590.8	1585.9
177.5°	1588.9	1587.1	1588.3	1590.8	1593.2	1595.7	1595.7	1596.3	1598.1	1595.7	1592.6
180°	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6



TEST NUMBER: P188256

CATALOG NUMBER: MPBL-3-LD4-UNV-2LO-2LO-40

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6
2.5°	1299.3	1292.6	1285.3	1281.6	1279.2	1274.9	1271.9	1269.4	1268.2	1267.6	1263.3
5°	1284.7	1274.3	1262.7	1257.3	1253.0	1246.3	1238.4	1232.9	1228.6	1223.1	1217.6
7.5°	1266.4	1252.4	1236.5	1229.8	1223.7	1213.4	1203.0	1193.8	1187.1	1180.4	1171.3
10°	1243.2	1225.5	1204.8	1198.1	1190.2	1177.4	1164.0	1153.0	1143.2	1132.3	1122.5
12.5°	1217.0	1195.7	1171.9	1163.4	1154.8	1138.4	1122.5	1109.1	1096.9	1084.1	1073.1
15°	1187.1	1162.7	1135.9	1125.6	1115.8	1096.9	1078.6	1063.4	1048.7	1035.3	1023.1
17.5°	1153.6	1126.2	1096.9	1084.7	1074.9	1053.0	1032.9	1015.8	999.3	985.3	974.3
20°	1117.0	1087.1	1056.0	1042.6	1031.7	1007.3	985.3	965.2	948.7	934.1	922.5
22.5°	1077.4	1045.7	1012.1	997.5	985.9	960.3	937.1	915.8	900.6	882.9	870.1
25°	1035.9	1001.8	966.4	951.2	939.0	912.8	888.4	865.8	848.1	832.9	818.3
27.5°	992.0	956.0	920.1	906.1	891.4	864.0	840.2	819.5	801.2	784.1	769.5
30°	946.3	909.7	875.0	857.9	843.9	813.4	791.4	770.1	751.8	734.7	720.7
32.5°	899.3	859.7	826.2	809.1	794.5	765.2	742.6	720.1	701.8	685.9	671.9
35°	852.4	811.5	777.4	760.3	745.7	717.0	692.0	671.9	653.6	637.8	625.6
37.5°	804.2	764.0	729.2	713.4	698.7	670.1	644.5	627.4	607.3	592.0	580.5
40°	755.4	714.6	681.7	665.2	650.6	621.9	596.9	579.8	560.9	545.7	534.7
42.5°	706.7	666.4	634.1	617.7	603.0	575.0	550.6	534.1	515.2	500.6	490.2
45°	657.9	618.9	585.9	570.1	556.1	528.6	504.9	488.4	470.1	456.1	446.3
47.5°	609.1	570.7	538.4	523.1	509.1	482.9	459.1	442.7	426.2	412.2	403.6
50°	560.9	523.8	492.0	476.2	462.8	437.8	415.2	398.8	382.3	369.5	361.6
52.5°	511.6	475.6	445.7	431.1	417.1	391.4	371.9	356.1	339.6	327.4	320.7
55°	465.2	429.2	400.0	386.0	372.5	348.8	327.4	313.4	298.2	286.6	279.3
57.5°	418.3	385.3	355.5	341.4	329.3	305.5	287.2	272.5	257.9	247.5	242.1
60°	371.3	340.8	312.8	300.0	287.2	264.0	246.3	232.9	220.1	210.4	206.1
62.5°	326.8	294.5	270.1	257.9	246.3	224.4	207.9	195.1	183.5	177.4	171.9
65°	283.5	253.0	229.9	217.7	206.7	187.2	170.1	161.0	150.6	143.9	139.6
67.5°	241.5	212.8	189.6	178.6	168.9	150.6	138.4	129.3	121.9	116.5	112.8
70°	201.2	173.8	151.8	143.3	134.7	118.3	109.8	100.0	95.7	89.6	87.2
72.5°	162.8	137.8	118.3	110.4	101.8	90.2	82.3	76.2	72.6	69.5	67.1
75°	126.8	104.9	87.8	81.1	75.0	65.9	61.0	55.5	53.0	51.2	49.4
77.5°	94.5	76.2	62.8	56.7	51.8	45.7	42.7	39.0	37.2	35.4	34.1
80°	65.9	50.6	40.9	37.2	34.8	29.9	28.0	25.6	24.4	23.2	22.0
82.5°	40.2	29.9	24.4	22.6	20.7	17.7	17.1	15.2	14.6	14.0	12.8
85°	20.1	15.2	12.8	11.6	11.0	9.8	9.8	9.1	8.5	8.5	7.9
87.5°	7.9	6.7	6.1	6.1	6.1	6.7	6.7	6.7	6.7	6.7	7.3
90°	6.1	6.7	7.3	7.3	7.9	8.5	9.1	9.8	9.8	10.4	9.8
92.5°	24.4	18.3	13.4	12.2	11.6	9.8	9.8	9.8	10.4	10.4	11.0
95°	61.0	54.9	46.9	43.9	40.9	35.4	31.1	26.8	23.2	22.0	18.9
97.5°	96.3	90.8	84.1	81.7	78.0	73.2	67.1	60.4	55.5	53.0	48.2
100°	134.7	128.7	121.9	119.5	115.8	110.4	107.3	100.6	95.1	92.1	83.5
102.5°	176.2	168.9	161.6	159.1	155.5	150.0	147.6	142.1	137.2	134.1	128.0
105°	219.5	212.2	203.6	201.2	196.9	193.9	189.0	183.5	179.3	177.4	171.9
107.5°	265.8	257.3	248.8	245.7	241.5	237.2	232.9	225.0	223.2	221.3	215.8
110°	315.2	306.1	296.3	293.3	288.4	284.7	279.3	273.8	269.5	267.7	262.2



TEST NUMBER: P188256

CATALOG NUMBER: MPBL-3-LD4-UNV-2LO-2LO-40

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	366.4	356.7	346.3	342.7	339.6	332.9	327.4	321.9	317.7	315.2	310.3
115°	420.1	409.7	398.2	394.5	390.8	384.1	378.0	374.4	367.7	365.2	360.3
117.5°	475.6	464.6	451.8	448.1	444.5	436.6	431.1	423.1	420.1	417.7	412.8
120°	532.9	520.7	507.9	503.6	500.0	491.4	484.7	480.5	473.1	470.7	465.2
122.5°	592.0	578.6	565.2	560.9	556.1	547.5	540.2	535.3	528.0	521.9	519.5
125°	651.8	637.2	622.5	618.9	613.4	604.8	596.9	590.2	583.5	579.8	575.0
127.5°	712.2	696.3	681.7	677.4	671.9	662.2	654.2	647.5	640.2	636.6	630.5
130°	773.7	757.3	741.4	736.5	731.1	721.3	709.1	704.8	696.9	692.6	687.2
132.5°	835.9	817.6	801.2	796.9	790.2	781.1	768.3	762.8	754.8	746.9	743.9
135°	897.5	878.0	860.9	856.1	850.6	840.2	830.4	821.3	812.2	806.7	800.6
137.5°	958.5	935.3	920.7	914.6	909.7	896.3	886.5	876.2	868.2	863.4	856.7
140°	1020.1	995.7	979.2	972.5	967.6	954.8	943.9	932.9	923.7	918.2	911.5
142.5°	1079.8	1054.2	1036.5	1031.0	1024.3	1011.5	1000.6	988.4	979.2	970.7	966.4
145°	1138.4	1112.1	1093.8	1087.7	1081.7	1068.8	1057.3	1045.7	1035.9	1026.8	1021.9
147.5°	1195.1	1168.8	1149.3	1143.2	1137.1	1124.3	1114.0	1104.8	1091.4	1081.7	1076.8
150°	1248.1	1223.1	1203.0	1195.7	1190.2	1178.0	1167.0	1157.3	1143.2	1134.1	1128.6
152.5°	1299.3	1274.9	1254.8	1247.5	1242.6	1229.2	1218.2	1206.6	1193.8	1184.7	1178.0
155°	1347.5	1323.7	1304.2	1296.9	1292.0	1279.2	1268.2	1259.1	1244.4	1234.7	1228.0
157.5°	1391.4	1369.4	1349.9	1342.0	1337.7	1325.5	1318.2	1304.8	1292.6	1282.9	1277.4
160°	1431.6	1410.9	1392.0	1384.7	1381.0	1369.4	1362.7	1353.0	1338.3	1329.8	1323.7
162.5°	1467.0	1448.1	1430.4	1423.7	1420.0	1410.3	1404.2	1395.1	1382.2	1373.1	1367.0
165°	1498.1	1480.4	1465.2	1457.9	1456.0	1446.9	1443.2	1434.1	1422.5	1415.8	1408.5
167.5°	1523.7	1509.7	1495.0	1488.9	1486.5	1480.4	1476.1	1469.4	1458.5	1453.0	1445.7
170°	1548.1	1534.7	1521.3	1516.4	1514.6	1509.1	1506.0	1499.9	1491.4	1485.3	1479.8
172.5°	1564.6	1554.2	1542.6	1538.3	1537.1	1533.5	1532.2	1528.0	1520.7	1516.4	1511.5
175°	1577.4	1569.4	1560.3	1556.6	1556.6	1554.8	1555.4	1552.4	1546.9	1543.8	1540.2
177.5°	1587.1	1579.8	1573.7	1570.7	1570.7	1571.9	1573.1	1571.9	1568.8	1566.4	1562.7
180°	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6



TEST NUMBER: P188256

CATALOG NUMBER: MPBL-3-LD4-UNV-2LO-2LO-40

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6
2.5°	1260.3	1257.3	1255.4	1251.8	1249.3	1245.7	1242.0	1244.4
5°	1213.4	1208.5	1206.6	1203.0	1200.5	1197.5	1194.5	1197.5
7.5°	1165.2	1158.5	1156.0	1151.8	1149.3	1145.1	1141.4	1145.7
10°	1114.6	1106.7	1103.6	1098.7	1094.5	1090.2	1087.1	1085.3
12.5°	1063.4	1055.4	1051.2	1046.3	1042.0	1037.8	1034.1	1037.1
15°	1012.8	1004.2	999.9	995.1	990.2	985.3	981.0	984.1
17.5°	960.9	950.0	946.9	942.6	937.1	932.3	928.6	930.4
20°	907.9	898.1	894.5	890.8	884.7	879.2	876.2	878.0
22.5°	856.7	845.7	842.0	838.4	832.3	827.4	825.0	825.6
25°	806.7	795.7	792.0	789.0	782.3	777.4	774.4	775.0
27.5°	757.9	746.9	742.6	740.2	734.1	728.6	725.6	726.2
30°	709.1	698.1	694.5	692.0	684.1	679.8	678.6	678.6
32.5°	664.0	650.6	646.9	645.1	638.4	634.1	632.9	632.9
35°	613.4	604.2	601.2	598.7	593.3	589.6	587.8	587.8
37.5°	567.7	559.7	556.7	554.2	549.4	546.3	546.3	544.5
40°	522.5	515.2	512.2	510.3	506.1	502.4	503.0	501.2
42.5°	479.2	471.3	468.9	467.0	463.4	459.7	460.3	459.1
45°	436.0	428.6	426.2	425.0	421.3	418.3	418.3	416.4
47.5°	393.9	388.4	384.1	382.9	379.9	377.4	376.8	375.0
50°	351.8	345.1	342.7	342.1	339.6	336.6	336.6	334.7
52.5°	311.6	306.7	303.0	301.8	298.8	296.3	296.9	295.7
55°	273.2	267.7	264.6	264.0	262.2	259.7	260.4	258.5
57.5°	235.4	231.1	230.5	228.0	225.6	225.0	224.4	222.5
60°	200.0	196.3	194.5	193.9	191.5	191.5	190.8	189.0
62.5°	166.5	164.0	163.4	161.6	159.7	157.9	159.1	157.9
65°	137.8	134.1	132.3	132.3	130.5	129.3	129.9	128.7
67.5°	110.4	107.3	106.1	106.1	104.3	103.0	103.7	103.0
70°	86.6	84.1	82.3	82.9	81.1	80.5	81.1	80.5
72.5°	65.9	64.0	63.4	62.8	61.6	61.0	61.0	61.0
75°	48.2	46.9	46.3	45.1	45.1	44.5	44.5	43.9
77.5°	32.9	32.3	31.7	31.7	30.5	29.9	29.9	29.9
80°	21.3	20.1	20.1	19.5	18.9	18.9	18.9	18.3
82.5°	12.2	11.6	11.6	11.6	11.0	11.0	11.0	10.4
85°	7.9	7.9	7.9	7.3	7.3	7.3	7.3	7.3
87.5°	7.3	7.3	7.3	7.9	8.5	8.5	8.5	8.5
90°	9.8	9.1	9.1	9.8	10.4	10.4	11.0	11.6
92.5°	11.0	11.0	11.0	11.6	11.6	12.2	12.2	12.2
95°	17.1	16.5	16.5	15.2	15.9	15.2	15.2	15.2
97.5°	46.3	42.7	40.9	40.2	39.0	37.8	37.8	37.8
100°	82.9	78.0	75.0	74.4	72.6	70.7	70.7	70.1
102.5°	123.8	120.1	117.1	116.5	113.4	111.6	111.0	110.4
105°	170.1	165.2	164.0	161.6	158.5	156.1	156.7	155.5
107.5°	212.2	210.4	207.3	207.3	204.3	202.4	203.0	202.4
110°	258.5	256.7	253.6	253.6	251.2	250.0	250.6	249.4



TEST NUMBER: P188256

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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	306.7	304.9	301.8	301.2	299.4	297.5	298.2	297.5
115°	357.3	354.9	355.5	351.8	350.0	351.2	348.8	348.2
117.5°	408.5	406.7	404.2	403.6	401.8	401.2	401.2	401.2
120°	461.6	459.7	457.3	456.7	454.9	453.6	454.9	454.2
122.5°	515.8	513.4	510.9	510.3	508.5	507.3	508.5	508.5
125°	570.7	567.7	565.8	564.6	563.4	562.8	562.8	562.8
127.5°	626.2	623.1	621.3	619.5	618.3	617.7	618.3	618.3
130°	682.3	679.2	676.8	675.0	673.7	673.1	673.7	673.7
132.5°	739.0	734.1	732.3	730.5	729.2	728.6	729.2	729.8
135°	794.5	789.6	787.2	785.3	784.1	783.5	782.9	784.7
137.5°	850.0	845.1	844.5	840.2	839.0	837.8	837.2	838.4
140°	904.8	900.0	898.7	895.1	893.2	892.0	891.4	892.0
142.5°	959.7	953.0	952.4	948.1	946.3	944.5	943.9	945.1
145°	1014.6	1007.3	1006.0	1001.2	998.7	996.9	995.7	996.9
147.5°	1069.5	1060.9	1058.5	1054.2	1051.2	1048.7	1046.9	1047.5
150°	1121.3	1112.1	1109.7	1105.4	1101.8	1098.7	1098.1	1097.5
152.5°	1170.7	1161.5	1159.1	1155.4	1151.2	1148.7	1148.1	1146.9
155°	1220.7	1212.1	1209.1	1204.2	1200.5	1197.5	1196.9	1195.7
157.5°	1269.4	1260.9	1257.3	1253.6	1248.7	1245.7	1244.4	1243.2
160°	1315.8	1307.9	1304.2	1300.5	1295.7	1292.0	1291.4	1288.3
162.5°	1359.1	1351.2	1347.5	1343.2	1338.3	1334.7	1334.1	1331.6
165°	1400.5	1392.0	1390.2	1384.7	1379.8	1376.1	1374.9	1371.9
167.5°	1439.0	1431.6	1428.0	1424.9	1420.7	1417.6	1416.4	1413.3
170°	1474.3	1467.0	1464.6	1461.5	1457.2	1454.2	1453.6	1451.1
172.5°	1506.0	1499.3	1496.3	1492.6	1487.7	1484.1	1482.2	1479.8
175°	1535.9	1529.2	1526.1	1522.5	1515.2	1510.3	1507.2	1504.2
177.5°	1560.3	1554.8	1553.0	1549.9	1545.0	1542.0	1539.6	1537.1
180°	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6	1578.6

(END OF REPORT)