

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: P392500

Luminaire Tested: **MWL-2-18-38-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392500
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-2-18-38-UNV-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

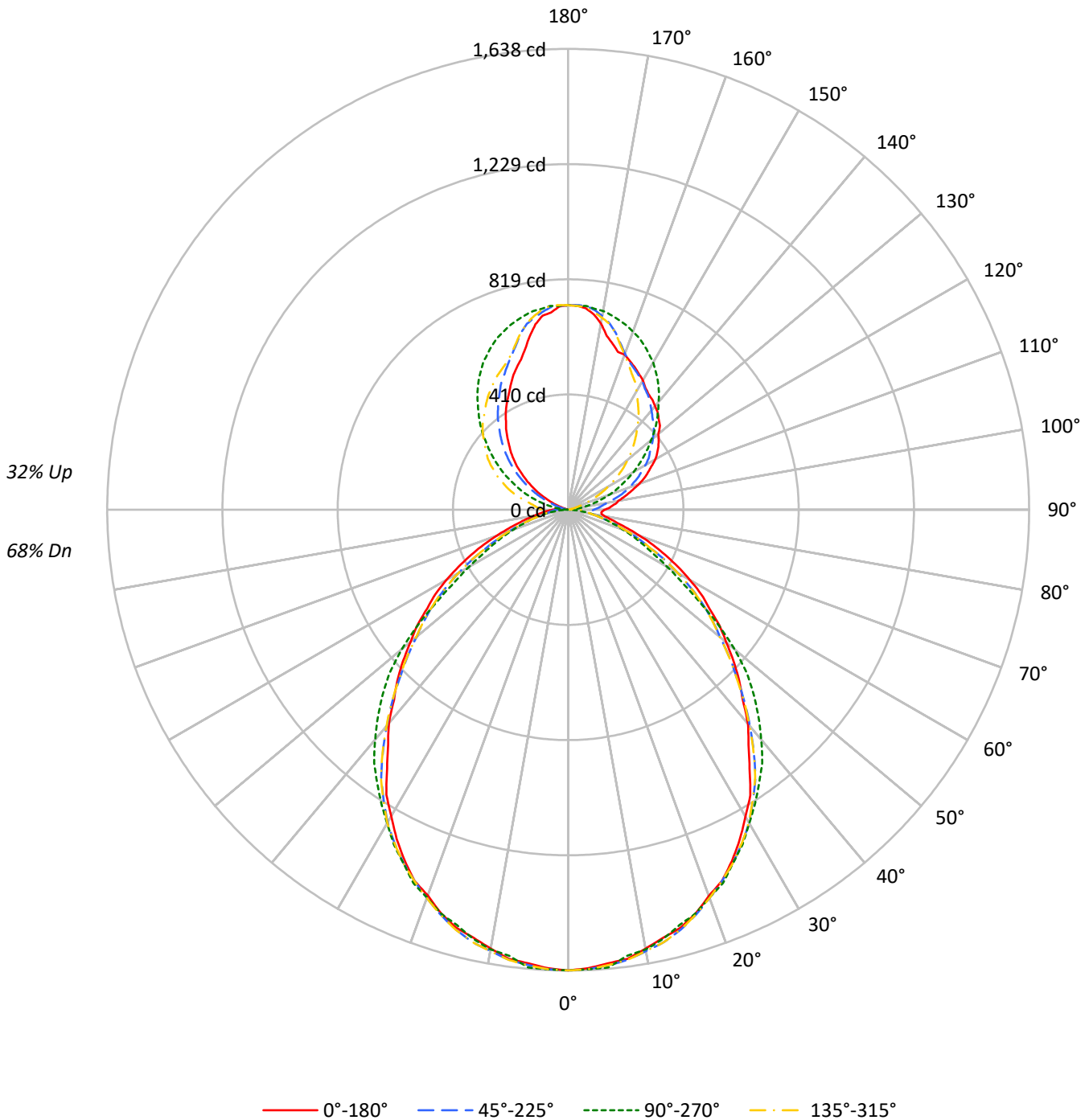
Lumens per Lamp: N/A
Luminaire Lumens: 5460.0 lumens
Efficiency: N/A
Efficacy: 92.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 58.9
Input Voltage (V): NR
Input Current (A_{in}): 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			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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	73	73	73	68
1	102	98	94	91	96	93	89	86	83	80	78	73	71	70	65	63	62	58
2	94	86	80	75	88	82	76	72	73	69	65	65	62	59	58	55	53	50
3	86	76	69	63	81	72	66	61	65	60	56	58	54	51	52	49	46	43
4	79	68	60	54	74	65	58	52	58	52	48	52	48	44	47	43	40	37
5	73	61	53	47	68	58	51	45	52	46	42	47	42	39	42	38	35	33
6	67	55	47	41	63	52	45	40	47	41	37	43	38	34	39	34	31	29
7	62	50	42	36	59	48	40	35	43	37	33	39	34	30	35	31	28	26
8	58	46	38	32	55	43	36	31	40	34	29	36	31	27	33	28	25	23
9	54	42	34	29	51	40	33	28	36	31	26	33	28	25	30	26	23	21
10	51	38	31	26	48	37	30	26	34	28	24	31	26	22	28	24	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	21151	21151	21151	21151
5°	20611	19472	20611	19472
10°	20038	17697	20038	17697
15°	19492	16117	19472	16117
20°	18663	14782	18643	14782
25°	17887	13468	17866	13468
30°	16775	12169	16747	12169
35°	15456	10976	15434	10976
40°	14261	9783	14232	9783
45°	12996	8518	12974	8518
50°	11800	7074	11776	7074
55°	10632	5251	10615	5251
60°	9473	3854	9463	3854
65°	8019	2867	8019	2867
70°	6480	2096	6492	2096
75°	5026	1473	5065	1473
80°	4460	932	4126	932
85°	5185	386	3730	386



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	154.0	2.8
10°-20°	433.2	7.9
20°-30°	635.4	11.6
30°-40°	720.5	13.2
40°-50°	672.4	12.3
50°-60°	528.1	9.7
60°-70°	328.7	6.0
70°-80°	158.8	2.9
80°-90°	77.0	1.4
90°-100°	70.6	1.3
100°-110°	113.1	2.1
110°-120°	193.9	3.6
120°-130°	263.2	4.8
130°-140°	300.3	5.5
140°-150°	299.3	5.5
150°-160°	260.5	4.8
160°-170°	183.0	3.4
170°-180°	68.1	1.2
0°-30°	1222.6	22.4
0°-40°	1943.1	35.6
0°-60°	3143.5	57.6
0°-90°	3708.1	67.9
90°-120°	377.5	6.9
90°-150°	1240.3	22.7
90°-180°	1752.0	32.1
0°-180°	5460.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1638	1638	1638	1638	1638	
5°	1619	1633	1619	1633	1619	154
15°	1539	1528	1537	1528	1539	432
25°	1377	1386	1375	1386	1377	632
35°	1123	1184	1122	1184	1123	704
45°	860	933	858	933	860	663
55°	613	566	612	566	613	552
65°	380	295	380	295	380	378
75°	179	140	180	140	179	198
85°	118	32	85	32	118	99
90°	130	2	53	2	130	72
95°	156	22	35	22	156	134
105°	221	102	6	102	221	235
115°	313	208	74	208	313	310
125°	391	326	179	326	391	349
135°	455	445	287	445	455	351
145°	500	556	385	556	500	315
155°	559	643	485	643	559	258
165°	610	698	590	698	610	173
175°	718	728	703	728	718	67
180°	727	727	727	727	727	



TEST NUMBER: P392500

CATALOG NUMBER: MWL-2-18-38-UNV-L835-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1637.5	1637.5	1637.5	1637.5	1637.5	1637.5	1637.5	1637.5	1637.5	1637.5	1637.5
2.5°	1631.1	1627.4	1635.1	1629.9	1634.7	1629.3	1635.1	1627.4	1631.6	1627.4	1635.1
5°	1618.6	1622.5	1625.4	1622.5	1633.2	1622.5	1624.9	1622.5	1618.6	1622.5	1624.9
7.5°	1610.3	1613.3	1614.3	1610.0	1599.3	1609.5	1613.8	1612.9	1610.3	1612.9	1613.8
10°	1583.9	1595.9	1593.0	1589.2	1587.2	1588.7	1592.6	1594.9	1583.9	1594.9	1592.6
12.5°	1558.7	1562.1	1574.2	1565.5	1562.0	1565.5	1574.2	1561.0	1557.7	1561.0	1574.2
15°	1539.0	1536.0	1545.2	1535.5	1528.2	1534.9	1544.6	1534.9	1537.4	1534.9	1544.6
17.5°	1505.2	1500.2	1509.4	1508.8	1505.0	1508.8	1508.8	1499.7	1503.6	1499.7	1508.8
20°	1460.7	1469.8	1468.8	1471.1	1466.8	1470.6	1468.2	1468.8	1459.1	1468.8	1468.2
22.5°	1428.2	1426.3	1428.2	1431.5	1436.8	1431.0	1427.6	1425.3	1427.2	1425.3	1427.6
25°	1377.0	1374.1	1386.1	1384.1	1385.6	1383.6	1385.1	1372.5	1375.4	1372.5	1385.1
27.5°	1320.9	1318.9	1336.8	1340.2	1341.1	1339.6	1335.8	1317.4	1319.3	1317.4	1335.8
30°	1260.0	1264.8	1285.1	1287.5	1286.9	1286.5	1283.6	1263.3	1257.9	1263.3	1283.6
32.5°	1203.9	1200.0	1222.3	1238.2	1236.2	1237.1	1220.7	1198.0	1201.9	1198.0	1220.7
35°	1123.2	1128.0	1159.9	1179.2	1183.5	1177.7	1158.4	1126.4	1121.6	1126.4	1158.4
37.5°	1052.6	1056.4	1082.6	1121.2	1132.7	1119.7	1081.0	1054.9	1051.0	1054.9	1081.0
40°	993.6	982.0	1004.2	1050.2	1067.0	1049.1	1002.2	980.0	991.6	980.0	1002.2
42.5°	918.2	913.4	927.4	977.7	1001.2	976.6	925.8	911.3	916.2	911.3	925.8
45°	859.7	846.2	848.1	899.3	932.6	898.3	846.1	844.6	858.2	844.6	846.1
47.5°	796.9	779.5	777.5	819.5	861.1	819.0	775.5	777.9	795.3	777.9	775.5
50°	733.0	724.3	705.0	735.4	771.6	734.4	703.0	722.3	731.5	722.3	703.0
52.5°	677.9	666.3	644.5	662.9	673.0	661.9	643.0	664.3	676.4	664.3	643.0
55°	612.6	607.7	582.6	584.1	566.2	583.1	581.2	606.3	611.6	606.3	581.2
57.5°	561.3	554.6	516.9	499.9	477.2	499.0	515.4	553.1	560.4	553.1	515.4
60°	499.0	491.2	449.7	419.2	407.6	418.7	448.7	490.3	498.5	490.3	448.7
62.5°	440.0	431.3	386.8	347.7	343.3	347.2	385.9	430.3	439.5	430.3	385.9
65°	379.6	365.1	320.6	287.7	295.0	287.2	320.1	364.6	379.6	364.6	320.1
67.5°	325.4	303.2	269.4	238.9	249.5	238.9	268.9	302.7	325.4	302.7	268.9
70°	269.8	245.7	221.5	196.4	208.0	196.4	221.5	246.2	270.3	246.2	221.5
72.5°	220.5	198.3	178.0	160.6	170.6	160.0	178.0	198.8	221.5	198.8	178.0
75°	179.0	154.8	137.8	127.1	139.7	127.1	138.4	155.3	180.4	155.3	138.4
77.5°	151.1	128.8	103.0	99.1	110.7	99.1	103.5	127.2	149.1	127.2	103.5
80°	130.8	114.7	81.3	74.0	83.6	74.0	80.3	106.4	121.0	106.4	80.3
82.5°	119.9	109.4	74.0	51.7	55.6	51.7	67.8	91.1	100.5	91.1	67.8
85°	118.3	111.3	74.5	40.7	32.4	39.7	59.7	80.1	85.1	80.1	59.7
87.5°	121.2	120.6	80.6	39.7	9.7	32.5	51.5	71.4	68.5	71.4	51.5
90°	129.6	130.3	91.4	40.8	1.5	21.4	40.7	58.2	52.9	58.2	40.7
92.5°	145.3	142.1	102.6	45.1	9.2	9.8	32.5	47.5	45.1	47.5	32.5
95°	156.5	154.5	113.9	54.1	21.5	3.0	21.9	35.9	35.4	35.9	21.9
97.5°	171.3	165.9	124.8	72.6	37.3	7.1	11.8	25.2	28.1	25.2	11.8
100°	180.7	175.3	141.1	94.6	56.8	17.9	5.5	14.7	19.5	14.7	5.5
102.5°	200.1	192.1	161.1	115.5	77.6	32.7	8.6	7.9	9.9	7.9	8.6
105°	220.8	213.7	187.1	137.5	101.7	52.6	21.9	8.0	5.5	8.0	21.9
107.5°	242.8	237.6	209.6	161.0	127.3	76.6	39.3	20.9	13.7	20.9	39.3
110°	268.4	262.2	231.6	183.5	154.9	101.1	59.2	37.2	29.0	37.2	59.2



TEST NUMBER: P392500

CATALOG NUMBER: MWL-2-18-38-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	292.9	288.3	252.1	207.0	182.4	127.7	83.7	57.7	50.0	57.7	83.7
115°	312.8	309.3	275.5	229.0	208.1	157.9	110.9	81.7	73.5	81.7	110.9
117.5°	332.8	332.2	293.9	251.5	238.7	185.1	136.9	106.7	97.0	106.7	136.9
120°	357.8	353.8	317.9	275.0	268.9	214.6	164.5	134.3	124.6	134.3	164.5
122.5°	375.2	372.6	338.4	296.4	296.4	243.7	191.1	160.9	150.7	160.9	191.1
125°	391.1	390.0	353.8	317.9	326.1	270.9	220.7	190.1	178.9	190.1	220.7
127.5°	405.4	406.9	373.7	341.5	356.3	298.5	249.9	216.2	204.4	216.2	249.9
130°	418.6	422.8	392.6	362.9	384.9	328.6	276.0	242.3	235.5	242.3	276.0
132.5°	442.6	439.6	412.1	385.9	416.6	357.2	303.6	269.3	260.6	269.3	303.6
135°	454.9	456.0	429.9	404.8	445.2	384.9	330.7	295.8	287.1	295.8	330.7
137.5°	469.8	466.7	443.2	427.8	471.8	411.5	356.2	324.0	310.2	324.0	356.2
140°	480.5	480.0	460.6	448.3	500.4	437.6	382.3	349.6	336.7	349.6	382.3
142.5°	491.7	494.8	477.9	470.7	529.0	465.1	410.4	374.6	362.4	374.6	410.4
145°	499.5	506.0	495.3	498.9	556.2	495.9	435.0	398.7	385.4	398.7	435.0
147.5°	512.2	520.9	508.1	518.9	579.7	523.0	459.5	423.8	412.0	423.8	459.5
150°	530.6	534.7	527.0	546.4	603.8	553.1	485.5	448.7	437.0	448.7	485.5
152.5°	544.3	549.4	540.7	576.6	622.6	580.8	513.2	472.3	458.5	472.3	513.2
155°	558.7	560.8	553.6	605.8	642.6	607.8	534.2	498.3	485.1	498.3	534.2
157.5°	572.0	576.0	567.9	627.8	660.0	631.3	559.2	524.4	512.7	524.4	559.2
160°	586.3	586.3	589.5	653.4	673.4	651.8	585.9	553.0	536.7	553.0	585.9
162.5°	587.8	596.6	618.6	671.3	687.1	669.7	614.5	572.6	559.2	572.6	614.5
165°	610.4	618.1	651.3	687.1	697.9	685.6	649.8	606.3	590.4	606.3	649.8
167.5°	632.9	651.3	677.9	704.0	708.1	699.4	676.9	646.7	631.3	646.7	676.9
170°	671.3	687.1	699.4	711.7	717.3	712.2	692.8	678.9	669.2	678.9	692.8
172.5°	700.5	711.7	715.8	724.0	720.4	718.3	708.1	701.9	695.8	701.9	708.1
175°	718.4	721.4	727.0	724.4	727.5	721.9	722.4	725.0	703.1	725.0	722.4
177.5°	726.0	729.6	728.0	724.3	724.9	723.9	724.9	726.0	723.0	726.0	724.9
180°	727.0	727.0	727.0	727.0	727.0	727.0	727.0	727.0	727.0	727.0	727.0



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CATALOG NUMBER: MWL-2-18-38-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1637.5	1637.5	1637.5	1637.5	1637.5	1637.5
2.5°	1629.3	1634.7	1629.9	1635.1	1627.4	1631.1
5°	1622.5	1633.2	1622.5	1625.4	1622.5	1618.6
7.5°	1609.5	1599.3	1610.0	1614.3	1613.3	1610.3
10°	1588.7	1587.2	1589.2	1593.0	1595.9	1583.9
12.5°	1565.5	1562.0	1565.5	1574.2	1562.1	1558.7
15°	1534.9	1528.2	1535.5	1545.2	1536.0	1539.0
17.5°	1508.8	1505.0	1508.8	1509.4	1500.2	1505.2
20°	1470.6	1466.8	1471.1	1468.8	1469.8	1460.7
22.5°	1431.0	1436.8	1431.5	1428.2	1426.3	1428.2
25°	1383.6	1385.6	1384.1	1386.1	1374.1	1377.0
27.5°	1339.6	1341.1	1340.2	1336.8	1318.9	1320.9
30°	1286.5	1286.9	1287.5	1285.1	1264.8	1260.0
32.5°	1237.1	1236.2	1238.2	1222.3	1200.0	1203.9
35°	1177.7	1183.5	1179.2	1159.9	1128.0	1123.2
37.5°	1119.7	1132.7	1121.2	1082.6	1056.4	1052.6
40°	1049.1	1067.0	1050.2	1004.2	982.0	993.6
42.5°	976.6	1001.2	977.7	927.4	913.4	918.2
45°	898.3	932.6	899.3	848.1	846.2	859.7
47.5°	819.0	861.1	819.5	777.5	779.5	796.9
50°	734.4	771.6	735.4	705.0	724.3	733.0
52.5°	661.9	673.0	662.9	644.5	666.3	677.9
55°	583.1	566.2	584.1	582.6	607.7	612.6
57.5°	499.0	477.2	499.9	516.9	554.6	561.3
60°	418.7	407.6	419.2	449.7	491.2	499.0
62.5°	347.2	343.3	347.7	386.8	431.3	440.0
65°	287.2	295.0	287.7	320.6	365.1	379.6
67.5°	238.9	249.5	238.9	269.4	303.2	325.4
70°	196.4	208.0	196.4	221.5	245.7	269.8
72.5°	160.0	170.6	160.6	178.0	198.3	220.5
75°	127.1	139.7	127.1	137.8	154.8	179.0
77.5°	99.1	110.7	99.1	103.0	128.8	151.1
80°	74.0	83.6	74.0	81.3	114.7	130.8
82.5°	51.7	55.6	51.7	74.0	109.4	119.9
85°	39.7	32.4	40.7	74.5	111.3	118.3
87.5°	32.5	9.7	39.7	80.6	120.6	121.2
90°	21.4	1.5	40.8	91.4	130.3	129.6
92.5°	9.8	9.2	45.1	102.6	142.1	145.3
95°	3.0	21.5	54.1	113.9	154.5	156.5
97.5°	7.1	37.3	72.6	124.8	165.9	171.3
100°	17.9	56.8	94.6	141.1	175.3	180.7
102.5°	32.7	77.6	115.5	161.1	192.1	200.1
105°	52.6	101.7	137.5	187.1	213.7	220.8
107.5°	76.6	127.3	161.0	209.6	237.6	242.8
110°	101.1	154.9	183.5	231.6	262.2	268.4



TEST NUMBER: P392500

CATALOG NUMBER: MWL-2-18-38-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	127.7	182.4	207.0	252.1	288.3	292.9
115°	157.9	208.1	229.0	275.5	309.3	312.8
117.5°	185.1	238.7	251.5	293.9	332.2	332.8
120°	214.6	268.9	275.0	317.9	353.8	357.8
122.5°	243.7	296.4	296.4	338.4	372.6	375.2
125°	270.9	326.1	317.9	353.8	390.0	391.1
127.5°	298.5	356.3	341.5	373.7	406.9	405.4
130°	328.6	384.9	362.9	392.6	422.8	418.6
132.5°	357.2	416.6	385.9	412.1	439.6	442.6
135°	384.9	445.2	404.8	429.9	456.0	454.9
137.5°	411.5	471.8	427.8	443.2	466.7	469.8
140°	437.6	500.4	448.3	460.6	480.0	480.5
142.5°	465.1	529.0	470.7	477.9	494.8	491.7
145°	495.9	556.2	498.9	495.3	506.0	499.5
147.5°	523.0	579.7	518.9	508.1	520.9	512.2
150°	553.1	603.8	546.4	527.0	534.7	530.6
152.5°	580.8	622.6	576.6	540.7	549.4	544.3
155°	607.8	642.6	605.8	553.6	560.8	558.7
157.5°	631.3	660.0	627.8	567.9	576.0	572.0
160°	651.8	673.4	653.4	589.5	586.3	586.3
162.5°	669.7	687.1	671.3	618.6	596.6	587.8
165°	685.6	697.9	687.1	651.3	618.1	610.4
167.5°	699.4	708.1	704.0	677.9	651.3	632.9
170°	712.2	717.3	711.7	699.4	687.1	671.3
172.5°	718.3	720.4	724.0	715.8	711.7	700.5
175°	721.9	727.5	724.4	727.0	721.4	718.4
177.5°	723.9	724.9	724.3	728.0	729.6	726.0
180°	727.0	727.0	727.0	727.0	727.0	727.0

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