

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: P392515

Luminaire Tested: **MWL-2-22-38-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392515
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-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

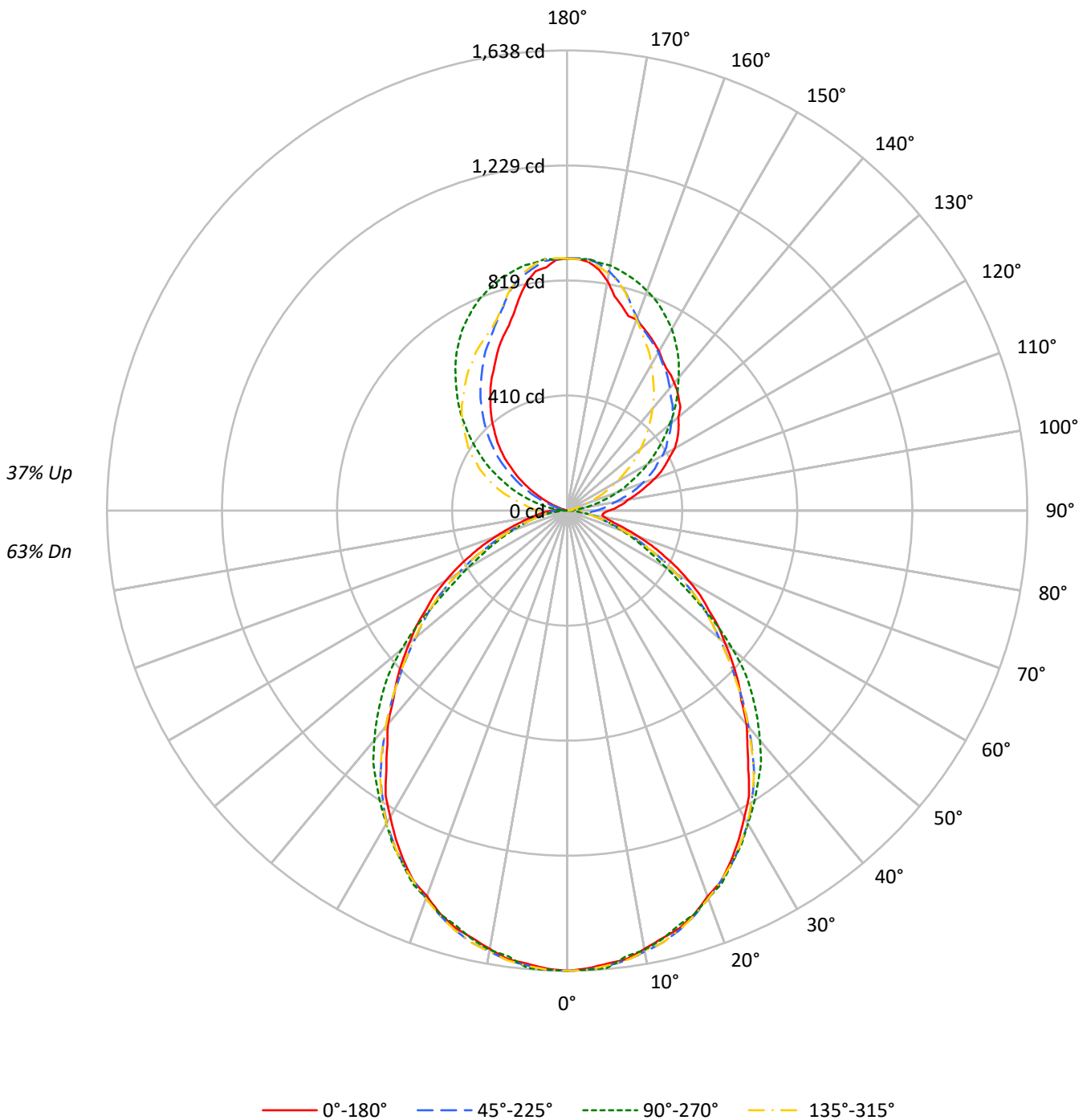
Lumens per Lamp: N/A
Luminaire Lumens: 5871.0 lumens
Efficiency: N/A
Efficacy: 91.9 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 63.9
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°	21163	21163	21163	21163
5°	20618	19484	20618	19484
10°	20047	17707	20047	17707
15°	19506	16124	19481	16124
20°	18677	14787	18652	14787
25°	17899	13472	17876	13472
30°	16788	12173	16754	12173
35°	15467	10981	15441	10981
40°	14274	9789	14238	9789
45°	13007	8524	12980	8524
50°	11811	7079	11782	7079
55°	10644	5255	10622	5255
60°	9482	3858	9471	3858
65°	8028	2869	8028	2869
70°	6485	2098	6502	2098
75°	5031	1475	5085	1475
80°	4572	934	4160	934
85°	5619	389	3818	389



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	154.0	2.6
10°-20°	433.4	7.4
20°-30°	635.8	10.8
30°-40°	720.9	12.3
40°-50°	672.8	11.5
50°-60°	528.5	9.0
60°-70°	329.0	5.6
70°-80°	159.2	2.7
80°-90°	80.3	1.4
90°-100°	82.2	1.4
100°-110°	139.2	2.4
110°-120°	239.1	4.1
120°-130°	324.8	5.5
130°-140°	370.6	6.3
140°-150°	369.4	6.3
150°-160°	321.6	5.5
160°-170°	226.0	3.8
170°-180°	84.1	1.4
0°-30°	1223.2	20.8
0°-40°	1944.1	33.1
0°-60°	3145.4	53.6
0°-90°	3714.0	63.3
90°-120°	460.6	7.8
90°-150°	1525.4	26.0
90°-180°	2157.0	36.7
0°-180°	5871.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1638	1638	1638	1638	1638	
5°	1619	1634	1619	1634	1619	154
15°	1540	1529	1538	1529	1540	433
25°	1378	1386	1376	1386	1378	633
35°	1124	1184	1122	1184	1124	705
45°	860	933	859	933	860	664
55°	613	567	612	567	613	552
65°	380	295	380	295	380	378
75°	179	140	181	140	179	199
85°	128	33	87	33	128	106
90°	149	2	54	2	149	83
95°	186	26	36	26	186	159
105°	273	126	6	126	273	289
115°	386	257	90	257	386	383
125°	483	402	220	402	483	431
135°	562	550	354	550	562	433
145°	616	687	476	687	616	389
155°	690	794	598	794	690	318
165°	753	862	729	862	753	214
175°	888	898	869	898	888	83
180°	898	898	898	898	898	



TEST NUMBER: P392515

CATALOG NUMBER: MWL-2-22-38-UNV-L835-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1638.4	1638.4	1638.4	1638.4	1638.4	1638.4	1638.4	1638.4	1638.4	1638.4	1638.4
2.5°	1631.6	1628.1	1636.1	1631.0	1635.8	1630.3	1636.1	1628.1	1632.3	1628.1	1636.1
5°	1619.1	1623.2	1626.4	1623.5	1634.2	1623.5	1625.8	1623.2	1619.1	1623.2	1625.8
7.5°	1611.0	1614.2	1615.2	1610.9	1600.3	1610.4	1614.5	1613.6	1611.0	1613.6	1614.5
10°	1584.6	1596.8	1593.9	1590.1	1588.1	1589.4	1593.3	1595.6	1584.6	1595.6	1593.3
12.5°	1559.7	1563.0	1574.9	1566.2	1562.7	1566.2	1574.9	1561.7	1558.4	1561.7	1574.9
15°	1540.1	1536.9	1545.9	1536.2	1528.9	1535.6	1545.3	1535.6	1538.1	1535.6	1545.3
17.5°	1506.2	1501.1	1510.1	1509.5	1505.7	1509.5	1509.5	1500.4	1504.3	1500.4	1509.5
20°	1461.8	1470.8	1469.5	1471.8	1467.3	1471.1	1468.9	1469.5	1459.8	1469.5	1468.9
22.5°	1429.2	1427.2	1428.9	1432.2	1437.3	1431.5	1428.3	1426.0	1427.9	1426.0	1428.3
25°	1377.9	1375.0	1387.0	1384.8	1386.1	1384.1	1385.8	1373.2	1376.1	1373.2	1385.8
27.5°	1321.9	1319.9	1337.7	1340.9	1341.6	1340.3	1336.5	1318.1	1320.0	1318.1	1336.5
30°	1261.0	1265.8	1286.1	1288.4	1287.4	1287.2	1284.3	1263.9	1258.4	1263.9	1284.3
32.5°	1204.9	1201.0	1223.2	1239.1	1236.9	1237.8	1221.4	1198.5	1202.4	1198.5	1221.4
35°	1124.0	1128.9	1160.8	1180.1	1184.0	1178.2	1158.9	1126.9	1122.1	1126.9	1158.9
37.5°	1053.5	1057.3	1083.4	1122.1	1133.4	1120.2	1081.5	1055.4	1051.5	1055.4	1081.5
40°	994.5	982.9	1005.1	1050.9	1067.7	1049.6	1002.6	980.4	992.0	980.4	1002.6
42.5°	919.1	914.2	928.1	978.3	1001.9	977.1	926.2	911.7	916.6	911.7	926.2
45°	860.4	846.9	848.8	900.0	933.3	898.8	846.3	845.0	858.6	845.0	846.3
47.5°	797.5	780.1	778.2	820.2	861.7	819.5	775.7	778.3	795.7	778.3	775.7
50°	733.7	725.0	705.7	736.1	772.1	734.8	703.2	722.5	731.9	722.5	703.2
52.5°	678.6	667.0	645.2	663.5	673.5	662.3	643.2	664.5	676.8	664.5	643.2
55°	613.3	608.4	583.3	584.6	566.6	583.3	581.4	606.5	612.0	606.5	581.4
57.5°	562.0	555.3	517.5	500.4	477.6	499.2	515.6	553.3	560.8	553.3	515.6
60°	499.5	491.7	450.2	419.6	408.0	418.9	448.9	490.5	498.9	490.5	448.9
62.5°	440.5	431.8	387.3	348.1	343.5	347.4	386.1	430.5	439.9	430.5	386.1
65°	380.0	365.5	321.0	288.1	295.2	287.4	320.3	364.8	380.0	364.8	320.3
67.5°	325.8	303.6	269.7	239.1	249.7	239.1	269.1	302.9	325.8	302.9	269.1
70°	270.0	245.9	221.7	196.6	208.2	196.6	221.7	246.5	270.7	246.5	221.7
72.5°	220.7	198.5	178.2	160.8	170.8	160.2	178.2	199.2	222.0	199.2	178.2
75°	179.2	155.0	138.0	127.3	139.9	127.3	138.5	155.7	181.1	155.7	138.5
77.5°	152.3	129.5	103.2	99.3	110.9	99.3	103.7	127.6	149.8	127.6	103.7
80°	134.1	117.1	81.8	74.2	83.8	74.2	80.5	106.9	122.0	106.9	80.5
82.5°	126.0	114.6	75.9	51.9	55.8	51.9	68.3	91.8	102.0	91.8	68.3
85°	128.2	120.0	79.1	41.2	32.6	39.9	60.8	81.4	87.1	81.4	60.8
87.5°	135.6	133.7	88.8	42.0	9.7	33.2	52.7	73.0	70.4	73.0	52.7
90°	148.6	148.0	103.8	45.6	1.6	21.6	41.2	58.9	53.8	58.9	41.2
92.5°	169.6	164.9	119.4	53.6	11.1	10.0	32.9	48.0	45.7	48.0	32.9
95°	185.5	182.7	136.0	66.7	26.3	3.5	22.2	36.1	35.8	36.1	22.2
97.5°	205.6	199.6	152.2	89.4	45.8	8.5	12.5	25.7	28.6	25.7	12.5
100°	219.7	214.3	173.9	116.7	69.9	21.9	6.4	15.7	20.5	15.7	6.4
102.5°	246.1	236.5	198.9	142.6	95.8	40.1	10.4	8.9	10.8	8.9	10.4
105°	272.6	263.7	230.8	169.8	125.5	64.8	26.6	9.5	6.4	9.5	26.6
107.5°	299.7	293.4	258.6	198.6	157.1	94.3	48.1	25.3	16.4	25.3	48.1
110°	331.3	323.7	285.8	226.3	191.0	124.6	72.7	45.5	35.5	45.5	72.7



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CATALOG NUMBER: MWL-2-22-38-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	361.7	356.0	311.1	255.4	225.1	157.5	103.1	70.9	61.4	70.9	103.1
115°	386.1	381.9	340.1	282.6	256.7	194.7	136.6	100.6	90.1	100.6	136.6
117.5°	410.7	410.0	362.7	310.5	294.7	228.3	168.5	131.2	119.2	131.2	168.5
120°	441.7	436.6	392.3	339.3	331.6	264.6	202.6	165.4	153.3	165.4	202.6
122.5°	463.2	460.0	417.7	365.8	365.8	300.7	235.5	198.3	185.6	198.3	235.5
125°	482.7	481.5	436.6	392.3	402.5	334.2	272.3	234.3	220.3	234.3	272.3
127.5°	500.4	502.4	461.3	421.4	439.8	368.4	308.2	266.6	252.0	266.6	308.2
130°	516.6	522.0	484.7	448.0	475.2	405.6	340.5	298.8	290.2	298.8	340.5
132.5°	546.4	542.5	508.7	476.2	514.1	440.8	374.7	332.0	321.3	332.0	374.7
135°	561.5	562.8	530.5	499.6	549.5	474.9	407.9	364.9	354.2	364.9	407.9
137.5°	579.8	576.0	546.9	528.0	582.3	507.8	439.4	399.7	382.6	399.7	439.4
140°	593.1	592.5	568.4	553.3	617.8	540.0	471.7	431.2	415.5	431.2	471.7
142.5°	607.0	610.8	590.0	581.1	653.2	574.1	506.5	462.2	447.1	462.2	506.5
145°	616.5	624.7	611.4	615.9	686.6	612.1	536.9	491.9	475.5	491.9	536.9
147.5°	632.3	643.0	627.3	640.5	715.8	645.6	567.1	523.0	508.4	523.0	567.1
150°	654.7	659.9	650.3	674.7	745.4	682.9	599.2	553.6	539.1	553.6	599.2
152.5°	671.9	678.1	667.4	712.0	768.8	717.0	633.3	582.7	565.6	582.7	633.3
155°	689.6	692.1	683.6	748.0	793.5	750.6	659.5	614.9	598.5	614.9	659.5
157.5°	706.0	711.0	701.2	775.2	815.0	779.7	690.5	647.2	632.6	647.2	690.5
160°	723.7	723.7	727.7	806.8	831.8	804.9	723.4	682.6	662.4	682.6	723.4
162.5°	725.6	736.6	763.8	829.0	848.8	827.0	758.8	707.0	690.1	707.0	758.8
165°	753.4	763.2	804.3	848.5	862.1	846.7	802.4	748.6	728.7	748.6	802.4
167.5°	781.5	804.3	837.2	869.7	874.7	864.0	835.9	798.6	779.7	798.6	835.9
170°	829.0	848.5	864.0	878.9	885.8	879.5	855.7	838.4	826.4	838.4	855.7
172.5°	865.2	878.9	884.3	894.0	889.6	887.1	874.7	866.9	859.6	866.9	874.7
175°	887.7	891.2	897.8	894.7	898.5	891.5	892.2	895.6	868.7	895.6	892.2
177.5°	896.8	901.3	899.1	894.4	895.0	893.7	895.3	896.8	893.1	896.8	895.3
180°	897.8	897.8	897.8	897.8	897.8	897.8	897.8	897.8	897.8	897.8	897.8



TEST NUMBER: P392515

CATALOG NUMBER: MWL-2-22-38-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1638.4	1638.4	1638.4	1638.4	1638.4	1638.4
2.5°	1630.3	1635.8	1631.0	1636.1	1628.1	1631.6
5°	1623.5	1634.2	1623.5	1626.4	1623.2	1619.1
7.5°	1610.4	1600.3	1610.9	1615.2	1614.2	1611.0
10°	1589.4	1588.1	1590.1	1593.9	1596.8	1584.6
12.5°	1566.2	1562.7	1566.2	1574.9	1563.0	1559.7
15°	1535.6	1528.9	1536.2	1545.9	1536.9	1540.1
17.5°	1509.5	1505.7	1509.5	1510.1	1501.1	1506.2
20°	1471.1	1467.3	1471.8	1469.5	1470.8	1461.8
22.5°	1431.5	1437.3	1432.2	1428.9	1427.2	1429.2
25°	1384.1	1386.1	1384.8	1387.0	1375.0	1377.9
27.5°	1340.3	1341.6	1340.9	1337.7	1319.9	1321.9
30°	1287.2	1287.4	1288.4	1286.1	1265.8	1261.0
32.5°	1237.8	1236.9	1239.1	1223.2	1201.0	1204.9
35°	1178.2	1184.0	1180.1	1160.8	1128.9	1124.0
37.5°	1120.2	1133.4	1122.1	1083.4	1057.3	1053.5
40°	1049.6	1067.7	1050.9	1005.1	982.9	994.5
42.5°	977.1	1001.9	978.3	928.1	914.2	919.1
45°	898.8	933.3	900.0	848.8	846.9	860.4
47.5°	819.5	861.7	820.2	778.2	780.1	797.5
50°	734.8	772.1	736.1	705.7	725.0	733.7
52.5°	662.3	673.5	663.5	645.2	667.0	678.6
55°	583.3	566.6	584.6	583.3	608.4	613.3
57.5°	499.2	477.6	500.4	517.5	555.3	562.0
60°	418.9	408.0	419.6	450.2	491.7	499.5
62.5°	347.4	343.5	348.1	387.3	431.8	440.5
65°	287.4	295.2	288.1	321.0	365.5	380.0
67.5°	239.1	249.7	239.1	269.7	303.6	325.8
70°	196.6	208.2	196.6	221.7	245.9	270.0
72.5°	160.2	170.8	160.8	178.2	198.5	220.7
75°	127.3	139.9	127.3	138.0	155.0	179.2
77.5°	99.3	110.9	99.3	103.2	129.5	152.3
80°	74.2	83.8	74.2	81.8	117.1	134.1
82.5°	51.9	55.8	51.9	75.9	114.6	126.0
85°	39.9	32.6	41.2	79.1	120.0	128.2
87.5°	33.2	9.7	42.0	88.8	133.7	135.6
90°	21.6	1.6	45.6	103.8	148.0	148.6
92.5°	10.0	11.1	53.6	119.4	164.9	169.6
95°	3.5	26.3	66.7	136.0	182.7	185.5
97.5°	8.5	45.8	89.4	152.2	199.6	205.6
100°	21.9	69.9	116.7	173.9	214.3	219.7
102.5°	40.1	95.8	142.6	198.9	236.5	246.1
105°	64.8	125.5	169.8	230.8	263.7	272.6
107.5°	94.3	157.1	198.6	258.6	293.4	299.7
110°	124.6	191.0	226.3	285.8	323.7	331.3



TEST NUMBER: P392515

CATALOG NUMBER: MWL-2-22-38-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	157.5	225.1	255.4	311.1	356.0	361.7
115°	194.7	256.7	282.6	340.1	381.9	386.1
117.5°	228.3	294.7	310.5	362.7	410.0	410.7
120°	264.6	331.6	339.3	392.3	436.6	441.7
122.5°	300.7	365.8	365.8	417.7	460.0	463.2
125°	334.2	402.5	392.3	436.6	481.5	482.7
127.5°	368.4	439.8	421.4	461.3	502.4	500.4
130°	405.6	475.2	448.0	484.7	522.0	516.6
132.5°	440.8	514.1	476.2	508.7	542.5	546.4
135°	474.9	549.5	499.6	530.5	562.8	561.5
137.5°	507.8	582.3	528.0	546.9	576.0	579.8
140°	540.0	617.8	553.3	568.4	592.5	593.1
142.5°	574.1	653.2	581.1	590.0	610.8	607.0
145°	612.1	686.6	615.9	611.4	624.7	616.5
147.5°	645.6	715.8	640.5	627.3	643.0	632.3
150°	682.9	745.4	674.7	650.3	659.9	654.7
152.5°	717.0	768.8	712.0	667.4	678.1	671.9
155°	750.6	793.5	748.0	683.6	692.1	689.6
157.5°	779.7	815.0	775.2	701.2	711.0	706.0
160°	804.9	831.8	806.8	727.7	723.7	723.7
162.5°	827.0	848.8	829.0	763.8	736.6	725.6
165°	846.7	862.1	848.5	804.3	763.2	753.4
167.5°	864.0	874.7	869.7	837.2	804.3	781.5
170°	879.5	885.8	878.9	864.0	848.5	829.0
172.5°	887.1	889.6	894.0	884.3	878.9	865.2
175°	891.5	898.5	894.7	897.8	891.2	887.7
177.5°	893.7	895.0	894.4	899.1	901.3	896.8
180°	897.8	897.8	897.8	897.8	897.8	897.8

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