

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: P392499

Luminaire Tested: **MWL-2-18-38-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392499
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-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4643.8 lumens
Efficiency: N/A
Efficacy: 78.1 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

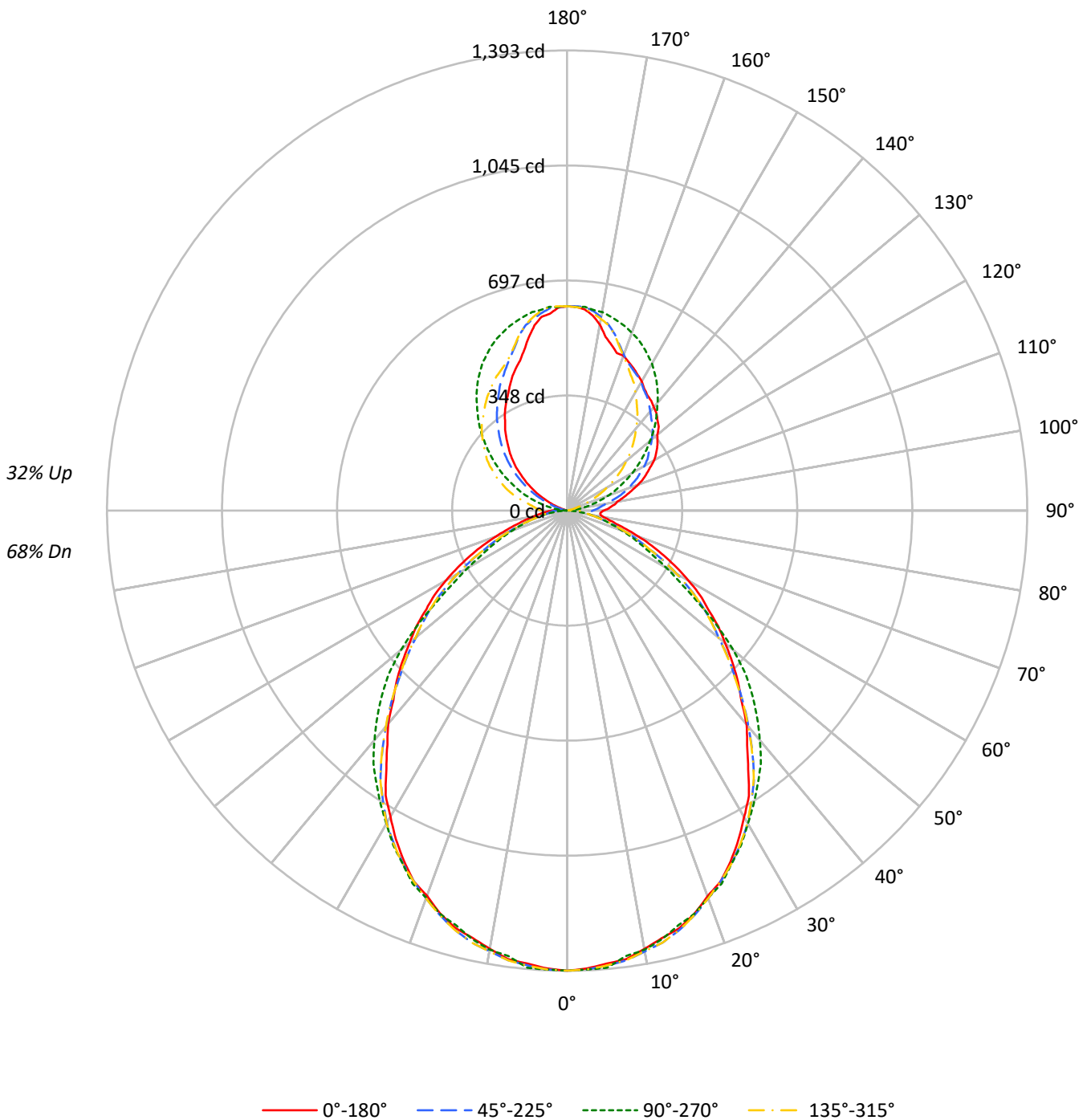
Input Watts (W): 59.489
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P392499

CATALOG NUMBER: MWL-2-18-38-UNV-L930-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P392499

CATALOG NUMBER: MWL-2-18-38-UNV-L930-EDD

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	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°	17989	17989	17989	17989
5°	17530	16561	17530	16561
10°	17042	15052	17042	15052
15°	16579	13707	16561	13707
20°	15873	12572	15856	12572
25°	15213	11455	15194	11455
30°	14267	10349	14244	10349
35°	13146	9336	13127	9336
40°	12129	8319	12103	8319
45°	11054	7245	11033	7245
50°	10037	6016	10016	6016
55°	9042	4466	9028	4466
60°	8057	3278	8049	3278
65°	6819	2439	6819	2439
70°	5512	1783	5522	1783
75°	4273	1253	4310	1253
80°	3795	793	3509	793
85°	4409	329	3173	329



TEST NUMBER: P392499

CATALOG NUMBER: MWL-2-18-38-UNV-L930-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	131.0	2.8
10°-20°	368.4	7.9
20°-30°	540.4	11.6
30°-40°	612.8	13.2
40°-50°	571.9	12.3
50°-60°	449.1	9.7
60°-70°	279.6	6.0
70°-80°	135.1	2.9
80°-90°	65.5	1.4
90°-100°	60.0	1.3
100°-110°	96.2	2.1
110°-120°	164.9	3.6
120°-130°	223.9	4.8
130°-140°	255.4	5.5
140°-150°	254.5	5.5
150°-160°	221.6	4.8
160°-170°	155.6	3.4
170°-180°	57.9	1.2
0°-30°	1039.8	22.4
0°-40°	1652.6	35.6
0°-60°	2673.6	57.6
0°-90°	3153.8	67.9
90°-120°	321.1	6.9
90°-150°	1054.9	22.7
90°-180°	1490.0	32.1
0°-180°	4643.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1393	1393	1393	1393	1393	
5°	1377	1389	1377	1389	1377	131
15°	1309	1300	1308	1300	1309	368
25°	1171	1178	1170	1178	1171	538
35°	955	1007	954	1007	955	599
45°	731	793	730	793	731	564
55°	521	482	520	482	521	469
65°	323	251	323	251	323	322
75°	152	119	154	119	152	168
85°	101	28	72	28	101	84
90°	110	1	45	1	110	61
95°	133	18	30	18	133	114
105°	188	86	5	86	188	200
115°	266	177	62	177	266	264
125°	333	277	152	277	333	297
135°	387	379	244	379	387	299
145°	425	473	328	473	425	268
155°	475	547	412	547	475	219
165°	519	594	502	594	519	147
175°	611	619	598	619	611	57
180°	618	618	618	618	618	



TEST NUMBER: P392499

CATALOG NUMBER: MWL-2-18-38-UNV-L930-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1392.7	1392.7	1392.7	1392.7	1392.7	1392.7	1392.7	1392.7	1392.7	1392.7	1392.7
2.5°	1387.3	1384.1	1390.7	1386.2	1390.3	1385.7	1390.7	1384.1	1387.7	1384.1	1390.7
5°	1376.6	1380.0	1382.5	1380.0	1389.0	1380.0	1382.0	1380.0	1376.6	1380.0	1382.0
7.5°	1369.6	1372.2	1373.0	1369.3	1360.2	1368.8	1372.5	1371.7	1369.6	1371.7	1372.5
10°	1347.1	1357.4	1354.9	1351.6	1350.0	1351.2	1354.5	1356.4	1347.1	1356.4	1354.5
12.5°	1325.7	1328.6	1338.9	1331.5	1328.5	1331.5	1338.9	1327.7	1324.9	1327.7	1338.9
15°	1309.0	1306.4	1314.1	1306.0	1299.7	1305.4	1313.7	1305.4	1307.6	1305.4	1313.7
17.5°	1280.2	1275.9	1283.8	1283.2	1280.0	1283.2	1283.2	1275.5	1278.8	1275.5	1283.2
20°	1242.3	1250.0	1249.3	1251.2	1247.5	1250.8	1248.7	1249.3	1241.0	1249.3	1248.7
22.5°	1214.6	1213.1	1214.6	1217.5	1222.0	1217.0	1214.2	1212.2	1213.9	1212.2	1214.2
25°	1171.1	1168.6	1178.9	1177.2	1178.5	1176.8	1178.0	1167.3	1169.7	1167.3	1178.0
27.5°	1123.4	1121.8	1137.0	1139.9	1140.6	1139.4	1136.1	1120.4	1122.1	1120.4	1136.1
30°	1071.6	1075.7	1093.0	1095.1	1094.5	1094.1	1091.6	1074.4	1069.9	1074.4	1091.6
32.5°	1023.9	1020.6	1039.5	1053.1	1051.4	1052.2	1038.2	1018.9	1022.2	1018.9	1038.2
35°	955.3	959.4	986.5	1003.0	1006.6	1001.7	985.2	958.1	953.9	958.1	985.2
37.5°	895.2	898.6	920.7	953.6	963.4	952.3	919.4	897.2	893.9	897.2	919.4
40°	845.1	835.2	854.1	893.2	907.4	892.3	852.4	833.5	843.3	833.5	852.4
42.5°	780.9	776.8	788.8	831.5	851.5	830.6	787.4	775.1	779.2	775.1	787.4
45°	731.2	719.6	721.3	764.9	793.2	764.0	719.5	718.3	729.8	718.3	719.5
47.5°	677.7	662.9	661.3	697.0	732.3	696.6	659.6	661.6	676.4	661.6	659.6
50°	623.5	616.1	599.6	625.4	656.2	624.6	597.9	614.3	622.2	614.3	597.9
52.5°	576.6	566.7	548.1	563.8	572.4	562.9	546.9	565.0	575.2	565.0	546.9
55°	521.0	516.9	495.5	496.8	481.5	495.9	494.3	515.6	520.2	515.6	494.3
57.5°	477.4	471.7	439.6	425.2	405.9	424.4	438.4	470.5	476.6	470.5	438.4
60°	424.4	417.8	382.5	356.5	346.7	356.2	381.6	417.0	424.0	417.0	381.6
62.5°	374.2	366.8	329.0	295.7	292.0	295.3	328.2	366.0	373.8	366.0	328.2
65°	322.8	310.5	272.7	244.7	250.9	244.3	272.3	310.1	322.8	310.1	272.3
67.5°	276.7	257.9	229.1	203.2	212.2	203.2	228.7	257.5	276.7	257.5	228.7
70°	229.5	208.9	188.4	167.0	176.9	167.0	188.4	209.4	229.9	209.4	188.4
72.5°	187.5	168.6	151.4	136.6	145.1	136.1	151.4	169.1	188.4	169.1	151.4
75°	152.2	131.6	117.2	108.1	118.8	108.1	117.6	132.1	153.5	132.1	117.6
77.5°	128.6	109.5	87.6	84.3	94.1	84.3	88.0	108.2	126.8	108.2	88.0
80°	111.3	97.6	69.1	62.9	71.1	62.9	68.3	90.5	102.9	90.5	68.3
82.5°	102.0	93.1	62.9	44.0	47.3	44.0	57.7	77.5	85.4	77.5	57.7
85°	100.6	94.7	63.4	34.6	27.6	33.8	50.8	68.1	72.4	68.1	50.8
87.5°	103.1	102.6	68.6	33.8	8.2	27.6	43.8	60.8	58.3	60.8	43.8
90°	110.2	110.9	77.7	34.7	1.2	18.1	34.6	49.5	45.0	49.5	34.6
92.5°	123.6	120.9	87.3	38.3	7.8	8.3	27.6	40.4	38.3	40.4	27.6
95°	133.1	131.4	96.9	46.1	18.2	2.6	18.6	30.5	30.1	30.5	18.6
97.5°	145.7	141.1	106.2	61.7	31.7	6.0	10.0	21.5	23.9	21.5	10.0
100°	153.6	149.1	120.0	80.4	48.3	15.2	4.7	12.5	16.6	12.5	4.7
102.5°	170.2	163.4	137.0	98.3	66.0	27.8	7.3	6.8	8.4	6.8	7.3
105°	187.8	181.7	159.1	116.9	86.5	44.7	18.6	6.9	4.7	6.9	18.6
107.5°	206.5	202.1	178.3	136.9	108.3	65.2	33.4	17.8	11.7	17.8	33.4
110°	228.2	223.0	197.0	156.1	131.7	86.0	50.4	31.7	24.7	31.7	50.4



TEST NUMBER: P392499

CATALOG NUMBER: MWL-2-18-38-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	249.2	245.2	214.4	176.0	155.1	108.7	71.2	49.1	42.5	49.1	71.2
115°	266.0	263.1	234.4	194.8	177.0	134.3	94.3	69.5	62.5	69.5	94.3
117.5°	283.0	282.6	250.0	213.9	203.0	157.3	116.4	90.8	82.5	90.8	116.4
120°	304.3	300.9	270.4	233.9	228.7	182.5	139.9	114.2	106.0	114.2	139.9
122.5°	319.1	316.9	287.8	252.1	252.1	207.3	162.5	136.8	128.2	136.8	162.5
125°	332.7	331.7	300.9	270.4	277.4	230.4	187.7	161.7	152.2	161.7	187.7
127.5°	344.8	346.1	317.8	290.4	303.0	253.8	212.6	183.8	173.8	183.8	212.6
130°	356.1	359.6	334.0	308.7	327.4	279.5	234.7	206.0	200.3	206.0	234.7
132.5°	376.4	373.9	350.4	328.2	354.3	303.9	258.2	229.0	221.6	229.0	258.2
135°	386.9	387.8	365.6	344.3	378.7	327.4	281.2	251.6	244.3	251.6	281.2
137.5°	399.6	396.9	376.9	363.8	401.2	350.0	302.9	275.5	263.8	275.5	302.9
140°	408.6	408.3	391.7	381.3	425.6	372.2	325.2	297.3	286.4	297.3	325.2
142.5°	418.2	420.9	406.4	400.4	449.9	395.6	349.0	318.7	308.2	318.7	349.0
145°	424.8	430.4	421.2	424.3	473.1	421.8	370.0	339.1	327.7	339.1	370.0
147.5°	435.7	443.1	432.1	441.3	493.1	444.7	390.9	360.4	350.4	360.4	390.9
150°	451.3	454.7	448.3	464.7	513.5	470.5	413.0	381.6	371.7	381.6	413.0
152.5°	463.0	467.3	459.9	490.4	529.5	494.0	436.5	401.7	389.9	401.7	436.5
155°	475.2	477.0	470.8	515.3	546.6	516.9	454.3	423.8	412.5	423.8	454.3
157.5°	486.5	489.9	483.0	533.9	561.3	536.9	475.6	446.0	436.0	446.0	475.6
160°	498.6	498.6	501.4	555.7	572.8	554.4	498.3	470.4	456.5	470.4	498.3
162.5°	499.9	507.4	526.1	570.9	584.4	569.6	522.7	486.9	475.6	486.9	522.7
165°	519.1	525.7	554.0	584.4	593.5	583.1	552.7	515.6	502.1	515.6	552.7
167.5°	538.2	554.0	576.6	598.8	602.3	594.9	575.7	550.0	536.9	550.0	575.7
170°	570.9	584.4	594.9	605.3	610.1	605.7	589.2	577.4	569.2	577.4	589.2
172.5°	595.7	605.3	608.9	615.7	612.7	610.9	602.3	597.0	591.8	597.0	602.3
175°	611.1	613.6	618.3	616.2	618.8	614.0	614.4	616.6	597.9	616.6	614.4
177.5°	617.5	620.5	619.2	616.1	616.5	615.6	616.5	617.5	614.9	617.5	616.5
180°	618.3	618.3	618.3	618.3	618.3	618.3	618.3	618.3	618.3	618.3	618.3



TEST NUMBER: P392499

CATALOG NUMBER: MWL-2-18-38-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1392.7	1392.7	1392.7	1392.7	1392.7	1392.7
2.5°	1385.7	1390.3	1386.2	1390.7	1384.1	1387.3
5°	1380.0	1389.0	1380.0	1382.5	1380.0	1376.6
7.5°	1368.8	1360.2	1369.3	1373.0	1372.2	1369.6
10°	1351.2	1350.0	1351.6	1354.9	1357.4	1347.1
12.5°	1331.5	1328.5	1331.5	1338.9	1328.6	1325.7
15°	1305.4	1299.7	1306.0	1314.1	1306.4	1309.0
17.5°	1283.2	1280.0	1283.2	1283.8	1275.9	1280.2
20°	1250.8	1247.5	1251.2	1249.3	1250.0	1242.3
22.5°	1217.0	1222.0	1217.5	1214.6	1213.1	1214.6
25°	1176.8	1178.5	1177.2	1178.9	1168.6	1171.1
27.5°	1139.4	1140.6	1139.9	1137.0	1121.8	1123.4
30°	1094.1	1094.5	1095.1	1093.0	1075.7	1071.6
32.5°	1052.2	1051.4	1053.1	1039.5	1020.6	1023.9
35°	1001.7	1006.6	1003.0	986.5	959.4	955.3
37.5°	952.3	963.4	953.6	920.7	898.6	895.2
40°	892.3	907.4	893.2	854.1	835.2	845.1
42.5°	830.6	851.5	831.5	788.8	776.8	780.9
45°	764.0	793.2	764.9	721.3	719.6	731.2
47.5°	696.6	732.3	697.0	661.3	662.9	677.7
50°	624.6	656.2	625.4	599.6	616.1	623.5
52.5°	562.9	572.4	563.8	548.1	566.7	576.6
55°	495.9	481.5	496.8	495.5	516.9	521.0
57.5°	424.4	405.9	425.2	439.6	471.7	477.4
60°	356.2	346.7	356.5	382.5	417.8	424.4
62.5°	295.3	292.0	295.7	329.0	366.8	374.2
65°	244.3	250.9	244.7	272.7	310.5	322.8
67.5°	203.2	212.2	203.2	229.1	257.9	276.7
70°	167.0	176.9	167.0	188.4	208.9	229.5
72.5°	136.1	145.1	136.6	151.4	168.6	187.5
75°	108.1	118.8	108.1	117.2	131.6	152.2
77.5°	84.3	94.1	84.3	87.6	109.5	128.6
80°	62.9	71.1	62.9	69.1	97.6	111.3
82.5°	44.0	47.3	44.0	62.9	93.1	102.0
85°	33.8	27.6	34.6	63.4	94.7	100.6
87.5°	27.6	8.2	33.8	68.6	102.6	103.1
90°	18.1	1.2	34.7	77.7	110.9	110.2
92.5°	8.3	7.8	38.3	87.3	120.9	123.6
95°	2.6	18.2	46.1	96.9	131.4	133.1
97.5°	6.0	31.7	61.7	106.2	141.1	145.7
100°	15.2	48.3	80.4	120.0	149.1	153.6
102.5°	27.8	66.0	98.3	137.0	163.4	170.2
105°	44.7	86.5	116.9	159.1	181.7	187.8
107.5°	65.2	108.3	136.9	178.3	202.1	206.5
110°	86.0	131.7	156.1	197.0	223.0	228.2



TEST NUMBER: P392499

CATALOG NUMBER: MWL-2-18-38-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	108.7	155.1	176.0	214.4	245.2	249.2
115°	134.3	177.0	194.8	234.4	263.1	266.0
117.5°	157.3	203.0	213.9	250.0	282.6	283.0
120°	182.5	228.7	233.9	270.4	300.9	304.3
122.5°	207.3	252.1	252.1	287.8	316.9	319.1
125°	230.4	277.4	270.4	300.9	331.7	332.7
127.5°	253.8	303.0	290.4	317.8	346.1	344.8
130°	279.5	327.4	308.7	334.0	359.6	356.1
132.5°	303.9	354.3	328.2	350.4	373.9	376.4
135°	327.4	378.7	344.3	365.6	387.8	386.9
137.5°	350.0	401.2	363.8	376.9	396.9	399.6
140°	372.2	425.6	381.3	391.7	408.3	408.6
142.5°	395.6	449.9	400.4	406.4	420.9	418.2
145°	421.8	473.1	424.3	421.2	430.4	424.8
147.5°	444.7	493.1	441.3	432.1	443.1	435.7
150°	470.5	513.5	464.7	448.3	454.7	451.3
152.5°	494.0	529.5	490.4	459.9	467.3	463.0
155°	516.9	546.6	515.3	470.8	477.0	475.2
157.5°	536.9	561.3	533.9	483.0	489.9	486.5
160°	554.4	572.8	555.7	501.4	498.6	498.6
162.5°	569.6	584.4	570.9	526.1	507.4	499.9
165°	583.1	593.5	584.4	554.0	525.7	519.1
167.5°	594.9	602.3	598.8	576.6	554.0	538.2
170°	605.7	610.1	605.3	594.9	584.4	570.9
172.5°	610.9	612.7	615.7	608.9	605.3	595.7
175°	614.0	618.8	616.2	618.3	613.6	611.1
177.5°	615.6	616.5	616.1	619.2	620.5	617.5
180°	618.3	618.3	618.3	618.3	618.3	618.3

(END OF REPORT)