

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: P392485

Luminaire Tested: **MWL-2-13-38-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392485
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-2-13-38-UNV-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

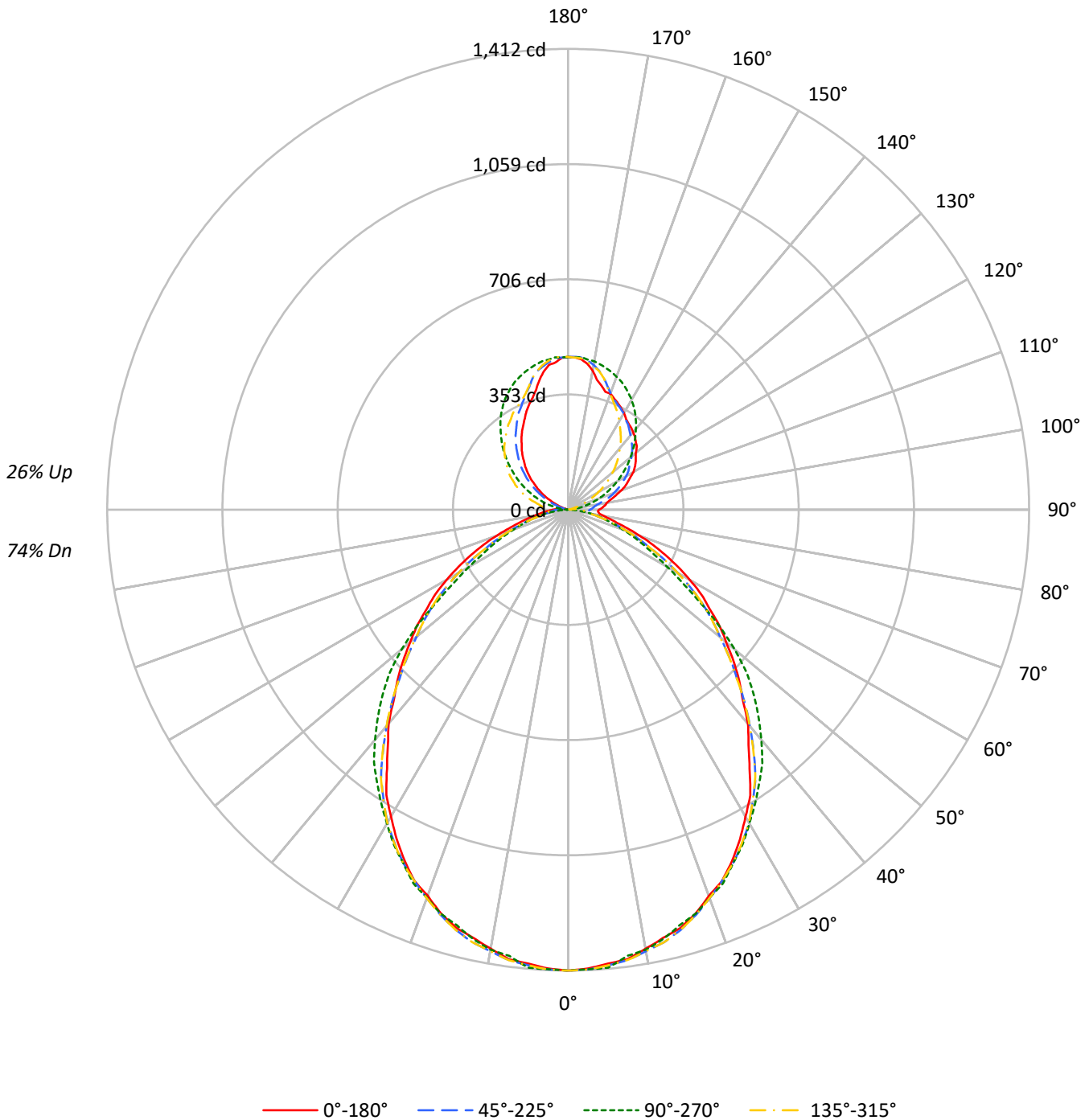
Lumens per Lamp: N/A
Luminaire Lumens: 4328.3 lumens
Efficiency: N/A
Efficacy: 79.1 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 54.742
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



TEST NUMBER: P392485
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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	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78	74
1	104	99	95	92	98	95	91	88	86	83	81	77	75	74	70	68	67	63
2	95	88	81	76	90	83	78	73	76	71	68	69	65	62	62	60	57	54
3	87	78	70	64	82	74	67	62	67	62	58	61	57	54	56	52	50	46
4	80	69	61	55	76	66	59	53	60	55	50	55	50	46	50	46	43	40
5	74	62	54	48	70	59	52	46	54	48	44	50	45	41	45	41	38	35
6	68	56	48	42	65	54	46	41	49	43	38	45	40	36	41	37	34	31
7	63	51	43	37	60	49	41	36	45	39	34	41	36	32	38	34	30	28
8	59	46	39	33	56	45	37	32	41	35	31	38	33	29	35	31	27	25
9	55	43	35	30	52	41	34	29	38	32	28	35	30	26	32	28	25	23
10	52	39	32	27	49	38	31	26	35	29	25	33	27	24	30	26	23	21

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	18240	18240	18240	18240
5°	17779	16791	17779	16791
10°	17282	15262	17282	15262
15°	16804	13901	16793	13901
20°	16089	12750	16078	12750
25°	15423	11616	15409	11616
30°	14462	10496	14445	10496
35°	13325	9466	13312	9466
40°	12294	8436	12274	8436
45°	11204	7345	11188	7345
50°	10171	6101	10156	6101
55°	9166	4527	9153	4527
60°	8167	3323	8159	3323
65°	6912	2472	6912	2472
70°	5587	1806	5594	1806
75°	4329	1271	4355	1271
80°	3744	804	3532	804
85°	4067	333	3134	333



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	132.8	3.1
10°-20°	373.6	8.6
20°-30°	548.0	12.7
30°-40°	621.3	14.4
40°-50°	579.8	13.4
50°-60°	455.3	10.5
60°-70°	283.3	6.5
70°-80°	136.7	3.2
80°-90°	63.4	1.5
90°-100°	50.0	1.2
100°-110°	73.2	1.7
110°-120°	125.1	2.9
120°-130°	169.7	3.9
130°-140°	193.6	4.5
140°-150°	192.9	4.5
150°-160°	167.9	3.9
160°-170°	117.8	2.7
170°-180°	43.8	1.0
0°-30°	1054.4	24.4
0°-40°	1675.7	38.7
0°-60°	2710.7	62.6
0°-90°	3194.2	73.8
90°-120°	248.3	5.7
90°-150°	804.5	18.6
90°-180°	1134.0	26.2
0°-180°	4328.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1412	1412	1412	1412	1412	
5°	1396	1408	1396	1408	1396	133
15°	1327	1318	1326	1318	1327	373
25°	1187	1195	1186	1195	1187	545
35°	968	1021	967	1021	968	607
45°	741	804	740	804	741	571
55°	528	488	527	488	528	475
65°	327	254	327	254	327	326
75°	154	120	155	120	154	170
85°	93	28	72	28	93	79
90°	94	1	45	1	94	52
95°	108	14	30	14	108	91
105°	142	66	4	66	142	152
115°	202	134	48	134	202	200
125°	252	210	116	210	252	225
135°	293	287	185	287	293	226
145°	322	358	248	358	322	203
155°	360	414	313	414	360	166
165°	393	449	380	449	393	112
175°	462	468	452	468	462	43
180°	468	468	468	468	468	



TEST NUMBER: P392485

CATALOG NUMBER: MWL-2-13-38-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1412.1	1412.1	1412.1	1412.1	1412.1	1412.1	1412.1	1412.1	1412.1	1412.1	1412.1
2.5°	1407.0	1403.5	1410.0	1405.2	1409.4	1405.0	1410.0	1403.5	1407.3	1403.5	1410.0
5°	1396.2	1399.3	1401.6	1399.1	1408.3	1399.1	1401.3	1399.3	1396.2	1399.3	1401.3
7.5°	1389.0	1391.3	1392.1	1388.3	1379.1	1388.0	1391.8	1391.0	1389.0	1391.0	1391.8
10°	1366.0	1376.3	1373.8	1370.5	1368.8	1370.1	1373.5	1375.6	1366.0	1375.6	1373.5
12.5°	1344.1	1347.1	1357.6	1350.1	1347.2	1350.1	1357.6	1346.4	1343.4	1346.4	1357.6
15°	1326.8	1324.6	1332.6	1324.2	1318.1	1323.9	1332.2	1323.9	1325.9	1323.9	1332.2
17.5°	1297.6	1293.7	1301.7	1301.3	1298.1	1301.3	1301.3	1293.4	1296.7	1293.4	1301.3
20°	1259.2	1267.3	1266.7	1268.8	1265.2	1268.5	1266.3	1266.7	1258.4	1266.7	1266.3
22.5°	1231.4	1229.8	1231.6	1234.6	1239.3	1234.3	1231.3	1229.1	1230.8	1229.1	1231.3
25°	1187.3	1184.8	1195.3	1193.7	1195.1	1193.4	1194.6	1183.7	1186.2	1183.7	1194.6
27.5°	1138.9	1137.2	1152.7	1155.7	1156.7	1155.4	1152.1	1136.2	1137.9	1136.2	1152.1
30°	1086.3	1090.4	1108.0	1110.2	1110.0	1109.5	1107.0	1089.5	1085.0	1089.5	1107.0
32.5°	1037.9	1034.6	1053.8	1067.7	1066.1	1067.0	1052.7	1033.2	1036.6	1033.2	1052.7
35°	968.3	972.5	1000.1	1016.8	1020.7	1015.7	999.1	971.5	967.4	971.5	999.1
37.5°	907.4	910.8	933.3	966.7	976.9	965.7	932.3	909.8	906.5	909.8	932.3
40°	856.6	846.6	865.7	905.4	920.1	904.8	864.5	845.2	855.2	845.2	864.5
42.5°	791.5	787.3	799.5	842.9	863.4	842.2	798.5	786.0	790.2	786.0	798.5
45°	741.1	729.4	731.1	775.3	804.2	774.6	729.8	728.5	740.1	728.5	729.8
47.5°	686.9	671.9	670.2	706.5	742.4	706.3	668.8	670.9	685.9	670.9	668.8
50°	631.8	624.3	607.7	634.0	665.4	633.4	606.3	623.0	630.9	623.0	606.3
52.5°	584.3	574.3	555.6	571.4	580.3	570.8	554.6	573.0	583.3	573.0	554.6
55°	528.1	523.9	502.2	503.5	488.1	502.9	501.2	522.9	527.4	522.9	501.2
57.5°	483.8	478.0	445.4	430.9	411.4	430.3	444.5	477.0	483.1	477.0	444.5
60°	430.2	423.4	387.6	361.4	351.4	361.0	386.9	422.8	429.8	422.8	386.9
62.5°	379.2	371.7	333.3	299.7	296.0	299.3	332.6	371.0	378.9	371.0	332.6
65°	327.2	314.7	276.3	247.9	254.3	247.6	276.0	314.4	327.2	314.4	276.0
67.5°	280.4	261.3	232.1	205.9	215.0	205.9	231.8	260.9	280.4	260.9	231.8
70°	232.6	211.8	190.9	169.2	179.2	169.2	190.9	212.1	232.9	212.1	190.9
72.5°	190.0	170.9	153.3	138.3	147.1	138.0	153.3	171.2	190.7	171.2	153.3
75°	154.2	133.3	118.8	109.6	120.5	109.6	119.2	133.7	155.1	133.7	119.2
77.5°	129.3	110.5	88.8	85.4	95.4	85.4	89.1	109.4	128.0	109.4	89.1
80°	109.8	96.6	69.7	63.8	72.1	63.8	69.0	91.5	103.6	91.5	69.0
82.5°	97.7	89.7	62.0	44.5	47.9	44.5	58.1	77.9	85.2	77.9	58.1
85°	92.8	87.9	60.1	34.7	27.9	34.0	50.5	67.8	71.5	67.8	50.5
87.5°	91.4	91.6	62.0	32.1	8.4	27.5	43.3	60.1	57.5	60.1	43.3
90°	94.1	95.9	67.2	30.7	1.2	18.2	34.7	49.5	44.9	49.5	34.7
92.5°	102.8	101.4	72.7	30.9	6.1	8.2	27.7	40.6	38.4	40.6	27.7
95°	108.1	106.9	77.7	35.0	14.0	2.2	18.6	30.7	30.2	30.7	18.6
97.5°	115.9	111.7	82.1	46.9	24.2	4.7	9.5	21.3	23.8	21.3	9.5
100°	119.5	115.0	91.1	61.0	36.6	11.6	4.0	11.8	16.0	11.8	4.0
102.5°	129.9	124.3	103.7	74.5	50.1	21.2	5.8	6.0	7.7	6.0	5.8
105°	142.3	137.7	120.6	88.6	65.6	34.0	14.5	5.6	4.0	5.6	14.5
107.5°	156.5	153.2	135.1	103.9	82.0	49.6	25.7	13.8	9.2	13.8	25.7
110°	172.9	169.0	149.3	118.4	99.9	65.4	38.5	24.3	19.1	24.3	38.5



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CATALOG NUMBER: MWL-2-13-38-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	188.7	185.7	162.4	133.5	117.7	82.5	54.2	37.4	32.5	37.4	54.2
115°	201.7	199.2	177.5	147.6	134.2	101.9	71.6	53.0	47.9	53.0	71.6
117.5°	214.5	214.2	189.5	162.1	153.9	119.3	88.6	69.2	63.0	69.2	88.6
120°	230.6	228.0	204.9	177.3	173.4	138.6	106.4	87.0	80.8	87.0	106.4
122.5°	241.8	240.1	218.1	191.2	191.2	157.3	123.5	104.1	97.5	104.1	123.5
125°	252.0	251.4	228.0	204.9	210.2	174.7	142.5	122.8	115.5	122.8	142.5
127.5°	261.2	262.2	240.7	220.0	229.6	192.4	161.3	139.5	131.9	139.5	161.3
130°	269.8	272.3	252.9	233.9	248.0	211.9	178.0	156.4	152.2	156.4	178.0
132.5°	285.3	283.4	265.4	248.9	268.6	230.5	195.8	174.0	168.4	174.0	195.8
135°	293.2	293.9	277.2	261.0	287.0	248.2	213.4	191.0	185.4	191.0	213.4
137.5°	302.7	300.8	285.6	275.8	304.1	265.3	229.8	209.1	200.2	209.1	229.8
140°	309.7	309.3	296.8	289.0	322.5	282.1	246.6	225.5	217.3	225.5	246.6
142.5°	316.9	318.8	308.0	303.4	340.8	299.9	264.7	241.6	233.8	241.6	264.7
145°	321.9	326.1	319.2	321.5	358.3	319.5	280.4	257.1	248.5	257.1	280.4
147.5°	330.0	335.6	327.5	334.4	373.4	337.0	296.2	273.2	265.6	273.2	296.2
150°	342.1	344.7	339.8	352.1	388.9	356.4	313.1	289.5	281.9	289.5	313.1
152.5°	350.9	354.2	348.6	371.5	401.0	374.1	330.8	304.6	295.7	304.6	330.8
155°	360.1	361.5	356.6	390.2	413.8	391.5	344.2	321.3	312.8	321.3	344.2
157.5°	368.6	371.3	365.9	404.4	425.1	406.6	360.3	338.1	330.5	338.1	360.3
160°	377.9	377.9	379.7	420.8	433.3	419.8	377.4	356.6	346.0	356.6	377.4
162.5°	378.9	384.2	398.4	432.3	442.3	431.3	395.7	368.8	360.4	368.8	395.7
165°	393.3	398.1	419.5	442.5	449.1	441.5	418.4	390.5	380.5	390.5	418.4
167.5°	407.6	419.5	436.5	453.1	455.7	450.2	435.9	416.5	406.6	416.5	435.9
170°	432.3	442.5	450.2	458.2	461.8	458.5	445.9	437.2	430.9	437.2	445.9
172.5°	450.8	458.2	460.6	466.1	463.8	462.5	455.7	452.0	447.9	452.0	455.7
175°	462.2	464.3	468.0	466.4	468.4	464.8	465.2	466.6	452.3	466.6	465.2
177.5°	467.3	469.6	468.7	466.7	466.9	466.3	466.7	467.3	465.3	467.3	466.7
180°	468.0	468.0	468.0	468.0	468.0	468.0	468.0	468.0	468.0	468.0	468.0



TEST NUMBER: P392485

CATALOG NUMBER: MWL-2-13-38-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1412.1	1412.1	1412.1	1412.1	1412.1	1412.1
2.5°	1405.0	1409.4	1405.2	1410.0	1403.5	1407.0
5°	1399.1	1408.3	1399.1	1401.6	1399.3	1396.2
7.5°	1388.0	1379.1	1388.3	1392.1	1391.3	1389.0
10°	1370.1	1368.8	1370.5	1373.8	1376.3	1366.0
12.5°	1350.1	1347.2	1350.1	1357.6	1347.1	1344.1
15°	1323.9	1318.1	1324.2	1332.6	1324.6	1326.8
17.5°	1301.3	1298.1	1301.3	1301.7	1293.7	1297.6
20°	1268.5	1265.2	1268.8	1266.7	1267.3	1259.2
22.5°	1234.3	1239.3	1234.6	1231.6	1229.8	1231.4
25°	1193.4	1195.1	1193.7	1195.3	1184.8	1187.3
27.5°	1155.4	1156.7	1155.7	1152.7	1137.2	1138.9
30°	1109.5	1110.0	1110.2	1108.0	1090.4	1086.3
32.5°	1067.0	1066.1	1067.7	1053.8	1034.6	1037.9
35°	1015.7	1020.7	1016.8	1000.1	972.5	968.3
37.5°	965.7	976.9	966.7	933.3	910.8	907.4
40°	904.8	920.1	905.4	865.7	846.6	856.6
42.5°	842.2	863.4	842.9	799.5	787.3	791.5
45°	774.6	804.2	775.3	731.1	729.4	741.1
47.5°	706.3	742.4	706.5	670.2	671.9	686.9
50°	633.4	665.4	634.0	607.7	624.3	631.8
52.5°	570.8	580.3	571.4	555.6	574.3	584.3
55°	502.9	488.1	503.5	502.2	523.9	528.1
57.5°	430.3	411.4	430.9	445.4	478.0	483.8
60°	361.0	351.4	361.4	387.6	423.4	430.2
62.5°	299.3	296.0	299.7	333.3	371.7	379.2
65°	247.6	254.3	247.9	276.3	314.7	327.2
67.5°	205.9	215.0	205.9	232.1	261.3	280.4
70°	169.2	179.2	169.2	190.9	211.8	232.6
72.5°	138.0	147.1	138.3	153.3	170.9	190.0
75°	109.6	120.5	109.6	118.8	133.3	154.2
77.5°	85.4	95.4	85.4	88.8	110.5	129.3
80°	63.8	72.1	63.8	69.7	96.6	109.8
82.5°	44.5	47.9	44.5	62.0	89.7	97.7
85°	34.0	27.9	34.7	60.1	87.9	92.8
87.5°	27.5	8.4	32.1	62.0	91.6	91.4
90°	18.2	1.2	30.7	67.2	95.9	94.1
92.5°	8.2	6.1	30.9	72.7	101.4	102.8
95°	2.2	14.0	35.0	77.7	106.9	108.1
97.5°	4.7	24.2	46.9	82.1	111.7	115.9
100°	11.6	36.6	61.0	91.1	115.0	119.5
102.5°	21.2	50.1	74.5	103.7	124.3	129.9
105°	34.0	65.6	88.6	120.6	137.7	142.3
107.5°	49.6	82.0	103.9	135.1	153.2	156.5
110°	65.4	99.9	118.4	149.3	169.0	172.9



TEST NUMBER: P392485

CATALOG NUMBER: MWL-2-13-38-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	82.5	117.7	133.5	162.4	185.7	188.7
115°	101.9	134.2	147.6	177.5	199.2	201.7
117.5°	119.3	153.9	162.1	189.5	214.2	214.5
120°	138.6	173.4	177.3	204.9	228.0	230.6
122.5°	157.3	191.2	191.2	218.1	240.1	241.8
125°	174.7	210.2	204.9	228.0	251.4	252.0
127.5°	192.4	229.6	220.0	240.7	262.2	261.2
130°	211.9	248.0	233.9	252.9	272.3	269.8
132.5°	230.5	268.6	248.9	265.4	283.4	285.3
135°	248.2	287.0	261.0	277.2	293.9	293.2
137.5°	265.3	304.1	275.8	285.6	300.8	302.7
140°	282.1	322.5	289.0	296.8	309.3	309.7
142.5°	299.9	340.8	303.4	308.0	318.8	316.9
145°	319.5	358.3	321.5	319.2	326.1	321.9
147.5°	337.0	373.4	334.4	327.5	335.6	330.0
150°	356.4	388.9	352.1	339.8	344.7	342.1
152.5°	374.1	401.0	371.5	348.6	354.2	350.9
155°	391.5	413.8	390.2	356.6	361.5	360.1
157.5°	406.6	425.1	404.4	365.9	371.3	368.6
160°	419.8	433.3	420.8	379.7	377.9	377.9
162.5°	431.3	442.3	432.3	398.4	384.2	378.9
165°	441.5	449.1	442.5	419.5	398.1	393.3
167.5°	450.2	455.7	453.1	436.5	419.5	407.6
170°	458.5	461.8	458.2	450.2	442.5	432.3
172.5°	462.5	463.8	466.1	460.6	458.2	450.8
175°	464.8	468.4	466.4	468.0	464.3	462.2
177.5°	466.3	466.9	466.7	468.7	469.6	467.3
180°	468.0	468.0	468.0	468.0	468.0	468.0

(END OF REPORT)