

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: P382211

Luminaire Tested: **MWL-2-18-38-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P382211
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-L830-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

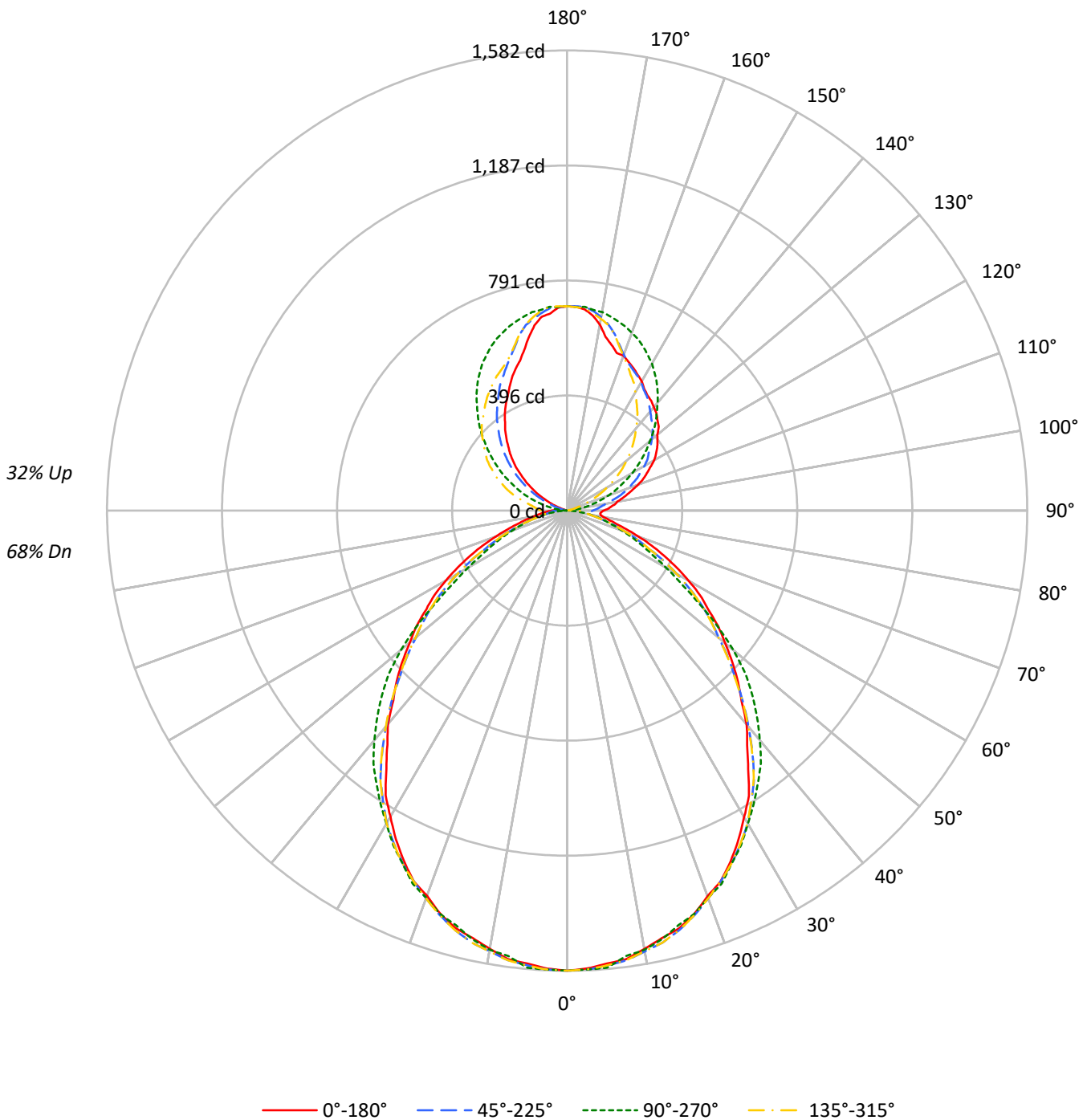
Lumens per Lamp: N/A
Luminaire Lumens: 5274.0 lumens
Efficiency: N/A
Efficacy: 89.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 58.9
Input Voltage (V): NR
Input Current (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		
RC	80					70						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°	20430	20430	20430	20430
5°	19908	18808	19908	18808
10°	19355	17095	19355	17095
15°	18828	15568	18809	15568
20°	18027	14278	18008	14278
25°	17277	13009	17257	13009
30°	16203	11754	16177	11754
35°	14929	10602	14909	10602
40°	13776	9449	13747	9449
45°	12554	8227	12531	8227
50°	11399	6833	11375	6833
55°	10269	5072	10254	5072
60°	9150	3723	9140	3723
65°	7745	2769	7745	2769
70°	6259	2025	6271	2025
75°	4854	1423	4894	1423
80°	4310	901	3986	901
85°	5010	373	3603	373



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	148.7	2.8
10°-20°	418.4	7.9
20°-30°	613.8	11.6
30°-40°	695.9	13.2
40°-50°	649.5	12.3
50°-60°	510.1	9.7
60°-70°	317.5	6.0
70°-80°	153.4	2.9
80°-90°	74.4	1.4
90°-100°	68.1	1.3
100°-110°	109.2	2.1
110°-120°	187.3	3.6
120°-130°	254.3	4.8
130°-140°	290.1	5.5
140°-150°	289.1	5.5
150°-160°	251.7	4.8
160°-170°	176.8	3.4
170°-180°	65.8	1.2
0°-30°	1181.0	22.4
0°-40°	1876.9	35.6
0°-60°	3036.4	57.6
0°-90°	3581.8	67.9
90°-120°	364.6	6.9
90°-150°	1198.0	22.7
90°-180°	1692.0	32.1
0°-180°	5274.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1582	1582	1582	1582	1582	
5°	1563	1578	1563	1578	1563	148
15°	1487	1476	1485	1476	1487	418
25°	1330	1338	1328	1338	1330	611
35°	1085	1143	1083	1143	1085	680
45°	830	901	829	901	830	640
55°	592	547	591	547	592	533
65°	367	285	367	285	367	365
75°	173	135	174	135	173	191
85°	114	31	82	31	114	96
90°	125	1	51	1	125	70
95°	151	21	34	21	151	129
105°	213	98	5	98	213	227
115°	302	201	71	201	302	299
125°	378	315	173	315	378	337
135°	439	430	277	430	439	339
145°	482	537	372	537	482	304
155°	540	621	468	621	540	249
165°	590	674	570	674	590	167
175°	694	703	679	703	694	65
180°	702	702	702	702	702	



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CATALOG NUMBER: MWL-2-18-38-UNV-L830-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1581.7	1581.7	1581.7	1581.7	1581.7	1581.7	1581.7	1581.7	1581.7	1581.7	1581.7
2.5°	1575.6	1571.9	1579.4	1574.3	1579.0	1573.8	1579.4	1571.9	1576.0	1571.9	1579.4
5°	1563.4	1567.3	1570.1	1567.3	1577.5	1567.3	1569.6	1567.3	1563.4	1567.3	1569.6
7.5°	1555.5	1558.4	1559.3	1555.1	1544.8	1554.6	1558.8	1557.9	1555.5	1557.9	1558.8
10°	1529.9	1541.6	1538.8	1535.0	1533.2	1534.6	1538.3	1540.5	1529.9	1540.5	1538.3
12.5°	1505.6	1508.9	1520.6	1512.2	1508.8	1512.2	1520.6	1507.9	1504.7	1507.9	1520.6
15°	1486.6	1483.7	1492.5	1483.2	1476.1	1482.6	1492.0	1482.6	1485.1	1482.6	1492.0
17.5°	1453.9	1449.1	1458.0	1457.4	1453.7	1457.4	1457.4	1448.6	1452.4	1448.6	1457.4
20°	1410.9	1419.7	1418.8	1421.0	1416.8	1420.5	1418.2	1418.8	1409.4	1418.8	1418.2
22.5°	1379.5	1377.7	1379.5	1382.7	1387.9	1382.2	1379.0	1376.7	1378.6	1376.7	1379.0
25°	1330.0	1327.2	1338.9	1337.0	1338.4	1336.5	1337.9	1325.7	1328.5	1325.7	1337.9
27.5°	1275.9	1274.0	1291.3	1294.6	1295.4	1294.0	1290.3	1272.5	1274.4	1272.5	1290.3
30°	1217.0	1221.7	1241.3	1243.7	1243.1	1242.6	1239.8	1220.2	1215.1	1220.2	1239.8
32.5°	1162.9	1159.1	1180.6	1196.0	1194.1	1195.0	1179.1	1157.2	1160.9	1157.2	1179.1
35°	1084.9	1089.6	1120.4	1139.1	1143.2	1137.6	1118.9	1088.1	1083.4	1088.1	1118.9
37.5°	1016.7	1020.5	1045.7	1083.0	1094.1	1081.5	1044.2	1019.0	1015.2	1019.0	1044.2
40°	959.8	948.6	970.0	1014.4	1030.6	1013.4	968.1	946.6	957.8	946.6	968.1
42.5°	886.9	882.2	895.8	944.3	967.1	943.3	894.3	880.3	885.0	880.3	894.3
45°	830.4	817.3	819.2	868.7	900.8	867.7	817.2	815.8	828.9	815.8	817.2
47.5°	769.7	752.9	751.0	791.6	831.7	791.1	749.1	751.4	768.2	751.4	749.1
50°	708.1	699.7	681.0	710.3	745.3	709.4	679.0	697.7	706.6	697.7	679.0
52.5°	654.8	643.6	622.5	640.3	650.1	639.3	621.1	641.7	653.3	641.7	621.1
55°	591.7	587.0	562.8	564.2	546.9	563.2	561.4	585.6	590.8	585.6	561.4
57.5°	542.2	535.7	499.3	482.9	461.0	482.0	497.9	534.3	541.3	534.3	497.9
60°	482.0	474.5	434.4	404.9	393.7	404.5	433.4	473.6	481.5	473.6	433.4
62.5°	425.0	416.6	373.6	335.8	331.6	335.4	372.7	415.7	424.5	415.7	372.7
65°	366.6	352.6	309.7	277.9	284.9	277.5	309.2	352.2	366.6	352.2	309.2
67.5°	314.3	292.9	260.2	230.8	241.0	230.8	259.7	292.4	314.3	292.4	259.7
70°	260.6	237.3	214.0	189.7	200.9	189.7	214.0	237.8	261.1	237.8	214.0
72.5°	213.0	191.5	171.9	155.1	164.8	154.6	171.9	192.0	214.0	192.0	171.9
75°	172.9	149.5	133.1	122.8	134.9	122.8	133.6	150.0	174.3	150.0	133.6
77.5°	146.0	124.4	99.5	95.7	106.9	95.7	100.0	122.9	144.0	122.9	100.0
80°	126.4	110.8	78.5	71.4	80.8	71.4	77.6	102.8	116.9	102.8	77.6
82.5°	115.8	105.7	71.4	50.0	53.7	50.0	65.5	88.0	97.0	88.0	65.5
85°	114.3	107.5	72.0	39.3	31.3	38.4	57.7	77.3	82.2	77.3	57.7
87.5°	117.1	116.5	77.9	38.4	9.3	31.4	49.8	69.0	66.2	69.0	49.8
90°	125.1	125.9	88.3	39.4	1.4	20.6	39.3	56.2	51.1	56.2	39.3
92.5°	140.4	137.3	99.1	43.5	8.9	9.4	31.4	45.9	43.5	45.9	31.4
95°	151.2	149.2	110.0	52.3	20.7	2.9	21.1	34.6	34.2	34.6	21.1
97.5°	165.5	160.3	120.6	70.1	36.0	6.8	11.4	24.4	27.2	24.4	11.4
100°	174.5	169.3	136.3	91.3	54.8	17.3	5.3	14.2	18.9	14.2	5.3
102.5°	193.3	185.6	155.6	111.6	75.0	31.6	8.3	7.7	9.5	7.7	8.3
105°	213.3	206.4	180.7	132.8	98.2	50.8	21.1	7.8	5.3	7.8	21.1
107.5°	234.5	229.5	202.5	155.5	123.0	74.0	37.9	20.2	13.3	20.2	37.9
110°	259.2	253.3	223.7	177.3	149.6	97.7	57.2	36.0	28.0	36.0	57.2



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CATALOG NUMBER: MWL-2-18-38-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	283.0	278.5	243.5	199.9	176.2	123.4	80.9	55.8	48.3	55.8	80.9
115°	302.1	298.8	266.2	221.2	201.0	152.5	107.1	78.9	71.0	78.9	107.1
117.5°	321.4	320.9	283.9	242.9	230.6	178.7	132.2	103.1	93.7	103.1	132.2
120°	345.6	341.7	307.1	265.6	259.7	207.3	158.9	129.7	120.4	129.7	158.9
122.5°	362.4	359.9	326.9	286.3	286.3	235.4	184.6	155.4	145.6	155.4	184.6
125°	377.8	376.7	341.7	307.1	315.0	261.7	213.2	183.6	172.8	183.6	213.2
127.5°	391.6	393.1	360.9	329.8	344.1	288.3	241.4	208.8	197.4	208.8	241.4
130°	404.4	408.4	379.3	350.6	371.8	317.4	266.6	234.0	227.5	234.0	266.6
132.5°	427.5	424.6	398.0	372.7	402.4	345.1	293.2	260.1	251.7	260.1	293.2
135°	439.4	440.4	415.2	391.0	430.1	371.8	319.4	285.8	277.4	285.8	319.4
137.5°	453.8	450.8	428.1	413.2	455.7	397.5	344.0	312.9	299.6	312.9	344.0
140°	464.1	463.7	444.9	433.0	483.4	422.7	369.3	337.7	325.3	337.7	369.3
142.5°	475.0	478.0	461.6	454.7	511.0	449.3	396.4	361.9	350.0	361.9	396.4
145°	482.4	488.8	478.4	481.9	537.3	479.0	420.2	385.1	372.2	385.1	420.2
147.5°	494.8	503.2	490.8	501.2	560.0	505.1	443.9	409.3	397.9	409.3	443.9
150°	512.5	516.4	509.1	527.8	583.2	534.3	469.0	433.4	422.1	433.4	469.0
152.5°	525.8	530.7	522.3	557.0	601.4	561.0	495.7	456.2	442.8	456.2	495.7
155°	539.7	541.7	534.7	585.2	620.8	587.1	516.0	481.3	468.5	481.3	516.0
157.5°	552.5	556.4	548.6	606.4	637.5	609.8	540.2	506.5	495.2	506.5	540.2
160°	566.3	566.3	569.4	631.1	650.5	629.6	565.9	534.2	518.4	534.2	565.9
162.5°	567.8	576.3	597.5	648.4	663.7	646.9	593.6	553.0	540.2	553.0	593.6
165°	589.6	597.0	629.2	663.7	674.1	662.2	627.7	585.6	570.3	585.6	627.7
167.5°	611.3	629.2	654.8	680.1	684.0	675.6	653.8	624.7	609.8	624.7	653.8
170°	648.4	663.7	675.6	687.4	692.9	687.9	669.2	655.8	646.4	655.8	669.2
172.5°	676.6	687.4	691.5	699.3	695.8	693.8	684.0	678.0	672.1	678.0	684.0
175°	694.0	696.9	702.2	699.8	702.8	697.3	697.8	700.3	679.1	700.3	697.8
177.5°	701.3	704.7	703.2	699.7	700.2	699.2	700.2	701.3	698.4	701.3	700.2
180°	702.2	702.2	702.2	702.2	702.2	702.2	702.2	702.2	702.2	702.2	702.2



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CATALOG NUMBER: MWL-2-18-38-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1581.7	1581.7	1581.7	1581.7	1581.7	1581.7
2.5°	1573.8	1579.0	1574.3	1579.4	1571.9	1575.6
5°	1567.3	1577.5	1567.3	1570.1	1567.3	1563.4
7.5°	1554.6	1544.8	1555.1	1559.3	1558.4	1555.5
10°	1534.6	1533.2	1535.0	1538.8	1541.6	1529.9
12.5°	1512.2	1508.8	1512.2	1520.6	1508.9	1505.6
15°	1482.6	1476.1	1483.2	1492.5	1483.7	1486.6
17.5°	1457.4	1453.7	1457.4	1458.0	1449.1	1453.9
20°	1420.5	1416.8	1421.0	1418.8	1419.7	1410.9
22.5°	1382.2	1387.9	1382.7	1379.5	1377.7	1379.5
25°	1336.5	1338.4	1337.0	1338.9	1327.2	1330.0
27.5°	1294.0	1295.4	1294.6	1291.3	1274.0	1275.9
30°	1242.6	1243.1	1243.7	1241.3	1221.7	1217.0
32.5°	1195.0	1194.1	1196.0	1180.6	1159.1	1162.9
35°	1137.6	1143.2	1139.1	1120.4	1089.6	1084.9
37.5°	1081.5	1094.1	1083.0	1045.7	1020.5	1016.7
40°	1013.4	1030.6	1014.4	970.0	948.6	959.8
42.5°	943.3	967.1	944.3	895.8	882.2	886.9
45°	867.7	900.8	868.7	819.2	817.3	830.4
47.5°	791.1	831.7	791.6	751.0	752.9	769.7
50°	709.4	745.3	710.3	681.0	699.7	708.1
52.5°	639.3	650.1	640.3	622.5	643.6	654.8
55°	563.2	546.9	564.2	562.8	587.0	591.7
57.5°	482.0	461.0	482.9	499.3	535.7	542.2
60°	404.5	393.7	404.9	434.4	474.5	482.0
62.5°	335.4	331.6	335.8	373.6	416.6	425.0
65°	277.5	284.9	277.9	309.7	352.6	366.6
67.5°	230.8	241.0	230.8	260.2	292.9	314.3
70°	189.7	200.9	189.7	214.0	237.3	260.6
72.5°	154.6	164.8	155.1	171.9	191.5	213.0
75°	122.8	134.9	122.8	133.1	149.5	172.9
77.5°	95.7	106.9	95.7	99.5	124.4	146.0
80°	71.4	80.8	71.4	78.5	110.8	126.4
82.5°	50.0	53.7	50.0	71.4	105.7	115.8
85°	38.4	31.3	39.3	72.0	107.5	114.3
87.5°	31.4	9.3	38.4	77.9	116.5	117.1
90°	20.6	1.4	39.4	88.3	125.9	125.1
92.5°	9.4	8.9	43.5	99.1	137.3	140.4
95°	2.9	20.7	52.3	110.0	149.2	151.2
97.5°	6.8	36.0	70.1	120.6	160.3	165.5
100°	17.3	54.8	91.3	136.3	169.3	174.5
102.5°	31.6	75.0	111.6	155.6	185.6	193.3
105°	50.8	98.2	132.8	180.7	206.4	213.3
107.5°	74.0	123.0	155.5	202.5	229.5	234.5
110°	97.7	149.6	177.3	223.7	253.3	259.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	123.4	176.2	199.9	243.5	278.5	283.0
115°	152.5	201.0	221.2	266.2	298.8	302.1
117.5°	178.7	230.6	242.9	283.9	320.9	321.4
120°	207.3	259.7	265.6	307.1	341.7	345.6
122.5°	235.4	286.3	286.3	326.9	359.9	362.4
125°	261.7	315.0	307.1	341.7	376.7	377.8
127.5°	288.3	344.1	329.8	360.9	393.1	391.6
130°	317.4	371.8	350.6	379.3	408.4	404.4
132.5°	345.1	402.4	372.7	398.0	424.6	427.5
135°	371.8	430.1	391.0	415.2	440.4	439.4
137.5°	397.5	455.7	413.2	428.1	450.8	453.8
140°	422.7	483.4	433.0	444.9	463.7	464.1
142.5°	449.3	511.0	454.7	461.6	478.0	475.0
145°	479.0	537.3	481.9	478.4	488.8	482.4
147.5°	505.1	560.0	501.2	490.8	503.2	494.8
150°	534.3	583.2	527.8	509.1	516.4	512.5
152.5°	561.0	601.4	557.0	522.3	530.7	525.8
155°	587.1	620.8	585.2	534.7	541.7	539.7
157.5°	609.8	637.5	606.4	548.6	556.4	552.5
160°	629.6	650.5	631.1	569.4	566.3	566.3
162.5°	646.9	663.7	648.4	597.5	576.3	567.8
165°	662.2	674.1	663.7	629.2	597.0	589.6
167.5°	675.6	684.0	680.1	654.8	629.2	611.3
170°	687.9	692.9	687.4	675.6	663.7	648.4
172.5°	693.8	695.8	699.3	691.5	687.4	676.6
175°	697.3	702.8	699.8	702.2	696.9	694.0
177.5°	699.2	700.2	699.7	703.2	704.7	701.3
180°	702.2	702.2	702.2	702.2	702.2	702.2

(END OF REPORT)