

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-L935-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-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

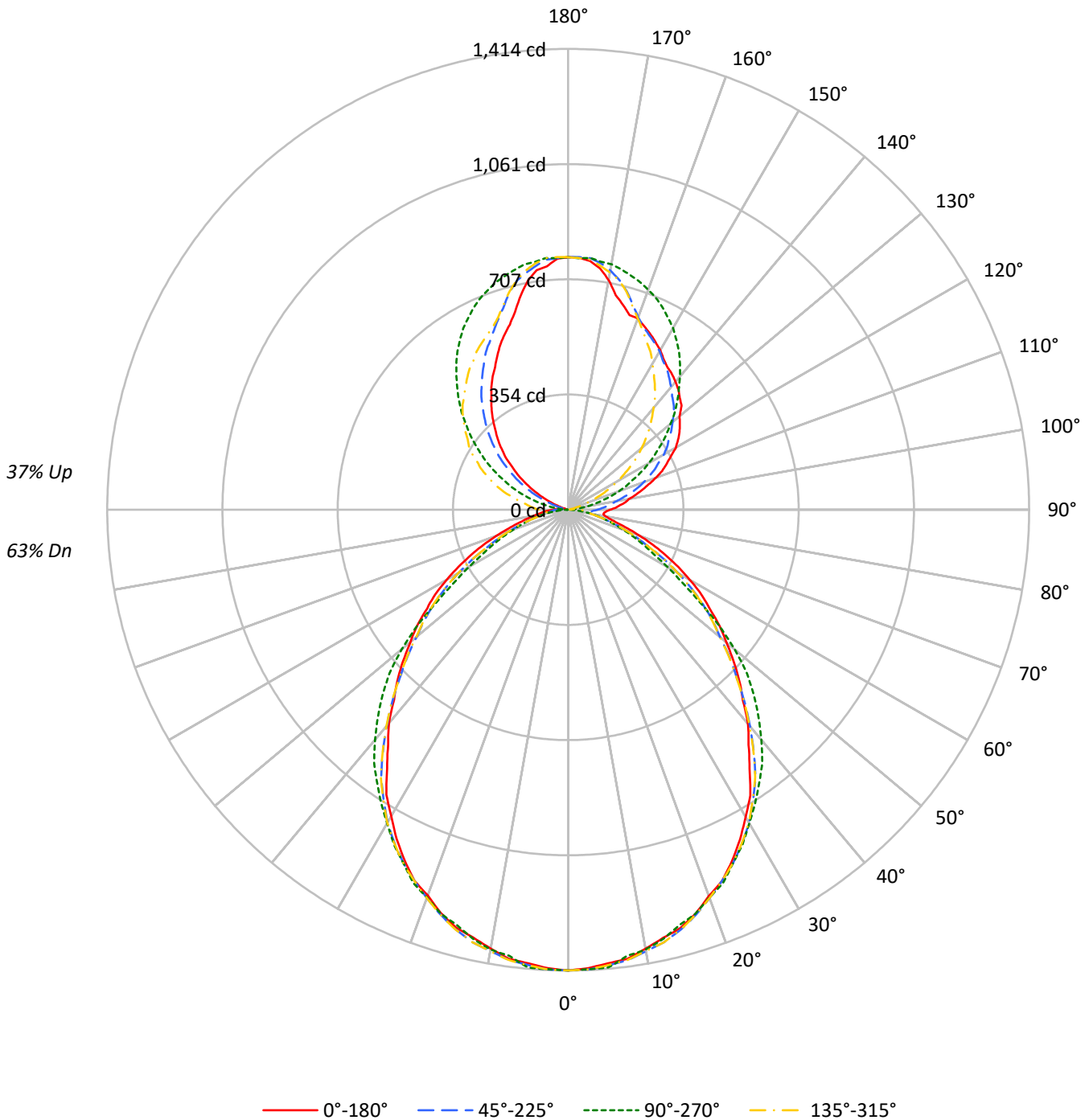
Lumens per Lamp: N/A
Luminaire Lumens: 5066.1 lumens
Efficiency: N/A
Efficacy: 78.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 64.539
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°	18262	18262	18262	18262
5°	17791	16814	17791	16814
10°	17299	15280	17299	15280
15°	16832	13914	16809	13914
20°	16117	12759	16095	12759
25°	15445	11626	15424	11626
30°	14486	10504	14457	10504
35°	13347	9476	13325	9476
40°	12317	8447	12286	8447
45°	11223	7355	11201	7355
50°	10192	6108	10167	6108
55°	9185	4534	9166	4534
60°	8182	3329	8172	3329
65°	6927	2476	6927	2476
70°	5596	1811	5611	1811
75°	4341	1273	4388	1273
80°	3945	806	3590	806
85°	4848	335	3296	335



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	132.9	2.6
10°-20°	374.0	7.4
20°-30°	548.6	10.8
30°-40°	622.1	12.3
40°-50°	580.6	11.5
50°-60°	456.0	9.0
60°-70°	283.9	5.6
70°-80°	137.4	2.7
80°-90°	69.3	1.4
90°-100°	71.0	1.4
100°-110°	120.1	2.4
110°-120°	206.4	4.1
120°-130°	280.3	5.5
130°-140°	319.8	6.3
140°-150°	318.7	6.3
150°-160°	277.5	5.5
160°-170°	195.0	3.8
170°-180°	72.6	1.4
0°-30°	1055.5	20.8
0°-40°	1677.6	33.1
0°-60°	2714.2	53.6
0°-90°	3204.8	63.3
90°-120°	397.4	7.8
90°-150°	1316.2	26.0
90°-180°	1861.0	36.7
0°-180°	5066.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1414	1414	1414	1414	1414	
5°	1397	1410	1397	1410	1397	133
15°	1329	1319	1327	1319	1329	373
25°	1189	1196	1187	1196	1189	546
35°	970	1022	968	1022	970	608
45°	742	805	741	805	742	573
55°	529	489	528	489	529	476
65°	328	255	328	255	328	327
75°	155	121	156	121	155	172
85°	111	28	75	28	111	91
90°	128	1	46	1	128	71
95°	160	23	31	23	160	138
105°	235	108	6	108	235	249
115°	333	222	78	222	333	330
125°	416	347	190	347	416	372
135°	484	474	306	474	484	374
145°	532	592	410	592	532	335
155°	595	685	516	685	595	274
165°	650	744	629	744	650	184
175°	766	775	750	775	766	71
180°	775	775	775	775	775	



TEST NUMBER: P392515

CATALOG NUMBER: MWL-2-22-38-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1413.8	1413.8	1413.8	1413.8	1413.8	1413.8	1413.8	1413.8	1413.8	1413.8	1413.8
2.5°	1407.9	1404.9	1411.8	1407.4	1411.5	1406.8	1411.8	1404.9	1408.5	1404.9	1411.8
5°	1397.1	1400.7	1403.4	1400.9	1410.2	1400.9	1402.9	1400.7	1397.1	1400.7	1402.9
7.5°	1390.1	1392.9	1393.8	1390.0	1380.9	1389.6	1393.2	1392.4	1390.1	1392.4	1393.2
10°	1367.4	1377.9	1375.4	1372.1	1370.4	1371.5	1374.9	1376.8	1367.4	1376.8	1374.9
12.5°	1345.9	1348.7	1359.0	1351.5	1348.5	1351.5	1359.0	1347.6	1344.7	1347.6	1359.0
15°	1329.0	1326.2	1334.0	1325.6	1319.3	1325.1	1333.4	1325.1	1327.2	1325.1	1333.4
17.5°	1299.7	1295.3	1303.1	1302.5	1299.3	1302.5	1302.5	1294.7	1298.1	1294.7	1302.5
20°	1261.4	1269.2	1268.0	1270.0	1266.1	1269.4	1267.5	1268.0	1259.7	1268.0	1267.5
22.5°	1233.3	1231.5	1233.0	1235.8	1240.2	1235.2	1232.5	1230.5	1232.1	1230.5	1232.5
25°	1189.0	1186.5	1196.8	1194.9	1196.1	1194.3	1195.8	1184.9	1187.4	1184.9	1195.8
27.5°	1140.7	1138.9	1154.3	1157.1	1157.7	1156.5	1153.3	1137.4	1139.0	1137.4	1153.3
30°	1088.1	1092.3	1109.8	1111.8	1110.9	1110.7	1108.2	1090.6	1085.9	1090.6	1108.2
32.5°	1039.7	1036.3	1055.5	1069.2	1067.3	1068.1	1053.9	1034.2	1037.6	1034.2	1053.9
35°	969.9	974.1	1001.7	1018.3	1021.7	1016.7	1000.0	972.4	968.3	972.4	1000.0
37.5°	909.1	912.3	934.9	968.3	978.0	966.6	933.2	910.7	907.3	910.7	933.2
40°	858.2	848.1	867.3	906.8	921.3	905.7	865.1	846.0	856.0	846.0	865.1
42.5°	793.1	788.9	800.9	844.2	864.5	843.1	799.2	786.7	790.9	786.7	799.2
45°	742.4	730.8	732.4	776.6	805.3	775.6	730.3	729.2	740.9	729.2	730.3
47.5°	688.2	673.1	671.5	707.8	743.6	707.1	669.4	671.6	686.6	671.6	669.4
50°	633.1	625.6	608.9	635.2	666.2	634.1	606.8	623.4	631.6	623.4	606.8
52.5°	585.6	575.6	556.7	572.5	581.2	571.5	555.0	573.4	584.0	573.4	555.0
55°	529.2	525.0	503.3	504.5	488.9	503.3	501.7	523.3	528.1	523.3	501.7
57.5°	484.9	479.2	446.6	431.8	412.1	430.8	444.9	477.4	483.9	477.4	444.9
60°	431.0	424.3	388.5	362.1	352.1	361.5	387.4	423.3	430.5	423.3	387.4
62.5°	380.1	372.6	334.2	300.4	296.4	299.8	333.2	371.5	379.6	371.5	333.2
65°	327.9	315.4	277.0	248.6	254.7	248.0	276.4	314.8	327.9	314.8	276.4
67.5°	281.1	262.0	232.7	206.3	215.5	206.3	232.2	261.4	281.1	261.4	232.2
70°	233.0	212.2	191.3	169.6	179.7	169.6	191.3	212.7	233.6	212.7	191.3
72.5°	190.4	171.3	153.8	138.8	147.4	138.2	153.8	171.9	191.6	171.9	153.8
75°	154.6	133.7	119.1	109.8	120.7	109.8	119.5	134.4	156.3	134.4	119.5
77.5°	131.4	111.7	89.1	85.7	95.7	85.7	89.5	110.1	129.3	110.1	89.5
80°	115.7	101.0	70.6	64.0	72.3	64.0	69.5	92.2	105.3	92.2	69.5
82.5°	108.7	98.9	65.5	44.8	48.1	44.8	58.9	79.2	88.0	79.2	58.9
85°	110.6	103.5	68.3	35.6	28.1	34.4	52.5	70.2	75.2	70.2	52.5
87.5°	117.0	115.4	76.6	36.2	8.4	28.6	45.5	63.0	60.7	63.0	45.5
90°	128.2	127.7	89.6	39.3	1.4	18.6	35.6	50.8	46.4	50.8	35.6
92.5°	146.3	142.3	103.0	46.3	9.6	8.6	28.4	41.4	39.4	41.4	28.4
95°	160.1	157.7	117.4	57.6	22.7	3.0	19.2	31.2	30.9	31.2	19.2
97.5°	177.4	172.2	131.3	77.1	39.5	7.3	10.8	22.2	24.7	22.2	10.8
100°	189.6	184.9	150.1	100.7	60.3	18.9	5.5	13.5	17.7	13.5	5.5
102.5°	212.4	204.1	171.6	123.0	82.7	34.6	9.0	7.7	9.3	7.7	9.0
105°	235.2	227.5	199.2	146.5	108.3	55.9	23.0	8.2	5.5	8.2	23.0
107.5°	258.6	253.2	223.1	171.4	135.6	81.4	41.5	21.8	14.2	21.8	41.5
110°	285.9	279.3	246.6	195.3	164.8	107.5	62.7	39.3	30.6	39.3	62.7



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CATALOG NUMBER: MWL-2-22-38-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	312.1	307.2	268.4	220.4	194.2	135.9	89.0	61.2	53.0	61.2	89.0
115°	333.2	329.5	293.5	243.9	221.5	168.0	117.9	86.8	77.7	86.8	117.9
117.5°	354.4	353.8	313.0	267.9	254.3	197.0	145.4	113.2	102.9	113.2	145.4
120°	381.1	376.7	338.5	292.8	286.1	228.3	174.8	142.7	132.3	142.7	174.8
122.5°	399.7	396.9	360.4	315.6	315.6	259.5	203.2	171.1	160.2	171.1	203.2
125°	416.5	415.5	376.7	338.5	347.3	288.4	235.0	202.2	190.1	202.2	235.0
127.5°	431.8	433.5	398.1	363.6	379.5	317.9	265.9	230.0	217.5	230.0	265.9
130°	445.8	450.4	418.2	386.6	410.1	350.0	293.8	257.8	250.4	257.8	293.8
132.5°	471.5	468.1	439.0	410.9	443.6	380.4	323.3	286.5	277.2	286.5	323.3
135°	484.5	485.6	457.8	431.1	474.2	409.8	352.0	314.9	305.6	314.9	352.0
137.5°	500.3	497.0	471.9	455.6	502.5	438.2	379.2	344.9	330.1	344.9	379.2
140°	511.8	511.3	490.5	477.4	533.1	466.0	407.0	372.1	358.5	372.1	407.0
142.5°	523.8	527.1	509.1	501.4	563.6	495.4	437.1	398.8	385.8	398.8	437.1
145°	532.0	539.1	527.6	531.5	592.5	528.2	463.3	424.5	410.3	424.5	463.3
147.5°	545.6	554.8	541.3	552.7	617.7	557.1	489.4	451.3	438.7	451.3	489.4
150°	564.9	569.4	561.1	582.2	643.2	589.3	517.0	477.7	465.2	477.7	517.0
152.5°	579.8	585.1	575.9	614.4	663.4	618.7	546.5	502.8	488.1	502.8	546.5
155°	595.1	597.2	589.9	645.4	684.7	647.7	569.1	530.6	516.4	530.6	569.1
157.5°	609.2	613.5	605.1	668.9	703.3	672.8	595.8	558.5	545.9	558.5	595.8
160°	624.5	624.5	627.9	696.2	717.8	694.5	624.2	589.0	571.6	589.0	624.2
162.5°	626.1	635.6	659.1	715.3	732.4	713.6	654.8	610.1	595.5	610.1	654.8
165°	650.1	658.6	694.0	732.2	743.9	730.6	692.4	646.0	628.8	646.0	692.4
167.5°	674.4	694.0	722.4	750.5	754.8	745.5	721.3	689.1	672.8	689.1	721.3
170°	715.3	732.2	745.5	758.4	764.4	758.9	738.4	723.5	713.1	723.5	738.4
172.5°	746.6	758.4	763.1	771.4	767.6	765.5	754.8	748.0	741.7	748.0	754.8
175°	766.0	769.0	774.7	772.0	775.3	769.3	769.9	772.8	749.6	772.8	769.9
177.5°	773.8	777.7	775.8	771.8	772.3	771.2	772.6	773.8	770.7	773.8	772.6
180°	774.7	774.7	774.7	774.7	774.7	774.7	774.7	774.7	774.7	774.7	774.7



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CATALOG NUMBER: MWL-2-22-38-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1413.8	1413.8	1413.8	1413.8	1413.8	1413.8
2.5°	1406.8	1411.5	1407.4	1411.8	1404.9	1407.9
5°	1400.9	1410.2	1400.9	1403.4	1400.7	1397.1
7.5°	1389.6	1380.9	1390.0	1393.8	1392.9	1390.1
10°	1371.5	1370.4	1372.1	1375.4	1377.9	1367.4
12.5°	1351.5	1348.5	1351.5	1359.0	1348.7	1345.9
15°	1325.1	1319.3	1325.6	1334.0	1326.2	1329.0
17.5°	1302.5	1299.3	1302.5	1303.1	1295.3	1299.7
20°	1269.4	1266.1	1270.0	1268.0	1269.2	1261.4
22.5°	1235.2	1240.2	1235.8	1233.0	1231.5	1233.3
25°	1194.3	1196.1	1194.9	1196.8	1186.5	1189.0
27.5°	1156.5	1157.7	1157.1	1154.3	1138.9	1140.7
30°	1110.7	1110.9	1111.8	1109.8	1092.3	1088.1
32.5°	1068.1	1067.3	1069.2	1055.5	1036.3	1039.7
35°	1016.7	1021.7	1018.3	1001.7	974.1	969.9
37.5°	966.6	978.0	968.3	934.9	912.3	909.1
40°	905.7	921.3	906.8	867.3	848.1	858.2
42.5°	843.1	864.5	844.2	800.9	788.9	793.1
45°	775.6	805.3	776.6	732.4	730.8	742.4
47.5°	707.1	743.6	707.8	671.5	673.1	688.2
50°	634.1	666.2	635.2	608.9	625.6	633.1
52.5°	571.5	581.2	572.5	556.7	575.6	585.6
55°	503.3	488.9	504.5	503.3	525.0	529.2
57.5°	430.8	412.1	431.8	446.6	479.2	484.9
60°	361.5	352.1	362.1	388.5	424.3	431.0
62.5°	299.8	296.4	300.4	334.2	372.6	380.1
65°	248.0	254.7	248.6	277.0	315.4	327.9
67.5°	206.3	215.5	206.3	232.7	262.0	281.1
70°	169.6	179.7	169.6	191.3	212.2	233.0
72.5°	138.2	147.4	138.8	153.8	171.3	190.4
75°	109.8	120.7	109.8	119.1	133.7	154.6
77.5°	85.7	95.7	85.7	89.1	111.7	131.4
80°	64.0	72.3	64.0	70.6	101.0	115.7
82.5°	44.8	48.1	44.8	65.5	98.9	108.7
85°	34.4	28.1	35.6	68.3	103.5	110.6
87.5°	28.6	8.4	36.2	76.6	115.4	117.0
90°	18.6	1.4	39.3	89.6	127.7	128.2
92.5°	8.6	9.6	46.3	103.0	142.3	146.3
95°	3.0	22.7	57.6	117.4	157.7	160.1
97.5°	7.3	39.5	77.1	131.3	172.2	177.4
100°	18.9	60.3	100.7	150.1	184.9	189.6
102.5°	34.6	82.7	123.0	171.6	204.1	212.4
105°	55.9	108.3	146.5	199.2	227.5	235.2
107.5°	81.4	135.6	171.4	223.1	253.2	258.6
110°	107.5	164.8	195.3	246.6	279.3	285.9



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	135.9	194.2	220.4	268.4	307.2	312.1
115°	168.0	221.5	243.9	293.5	329.5	333.2
117.5°	197.0	254.3	267.9	313.0	353.8	354.4
120°	228.3	286.1	292.8	338.5	376.7	381.1
122.5°	259.5	315.6	315.6	360.4	396.9	399.7
125°	288.4	347.3	338.5	376.7	415.5	416.5
127.5°	317.9	379.5	363.6	398.1	433.5	431.8
130°	350.0	410.1	386.6	418.2	450.4	445.8
132.5°	380.4	443.6	410.9	439.0	468.1	471.5
135°	409.8	474.2	431.1	457.8	485.6	484.5
137.5°	438.2	502.5	455.6	471.9	497.0	500.3
140°	466.0	533.1	477.4	490.5	511.3	511.8
142.5°	495.4	563.6	501.4	509.1	527.1	523.8
145°	528.2	592.5	531.5	527.6	539.1	532.0
147.5°	557.1	617.7	552.7	541.3	554.8	545.6
150°	589.3	643.2	582.2	561.1	569.4	564.9
152.5°	618.7	663.4	614.4	575.9	585.1	579.8
155°	647.7	684.7	645.4	589.9	597.2	595.1
157.5°	672.8	703.3	668.9	605.1	613.5	609.2
160°	694.5	717.8	696.2	627.9	624.5	624.5
162.5°	713.6	732.4	715.3	659.1	635.6	626.1
165°	730.6	743.9	732.2	694.0	658.6	650.1
167.5°	745.5	754.8	750.5	722.4	694.0	674.4
170°	758.9	764.4	758.4	745.5	732.2	715.3
172.5°	765.5	767.6	771.4	763.1	758.4	746.6
175°	769.3	775.3	772.0	774.7	769.0	766.0
177.5°	771.2	772.3	771.8	775.8	777.7	773.8
180°	774.7	774.7	774.7	774.7	774.7	774.7

(END OF REPORT)