

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: P392527

Luminaire Tested: **MWL-2-28-31-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392527
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-2-28-31-UNV-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

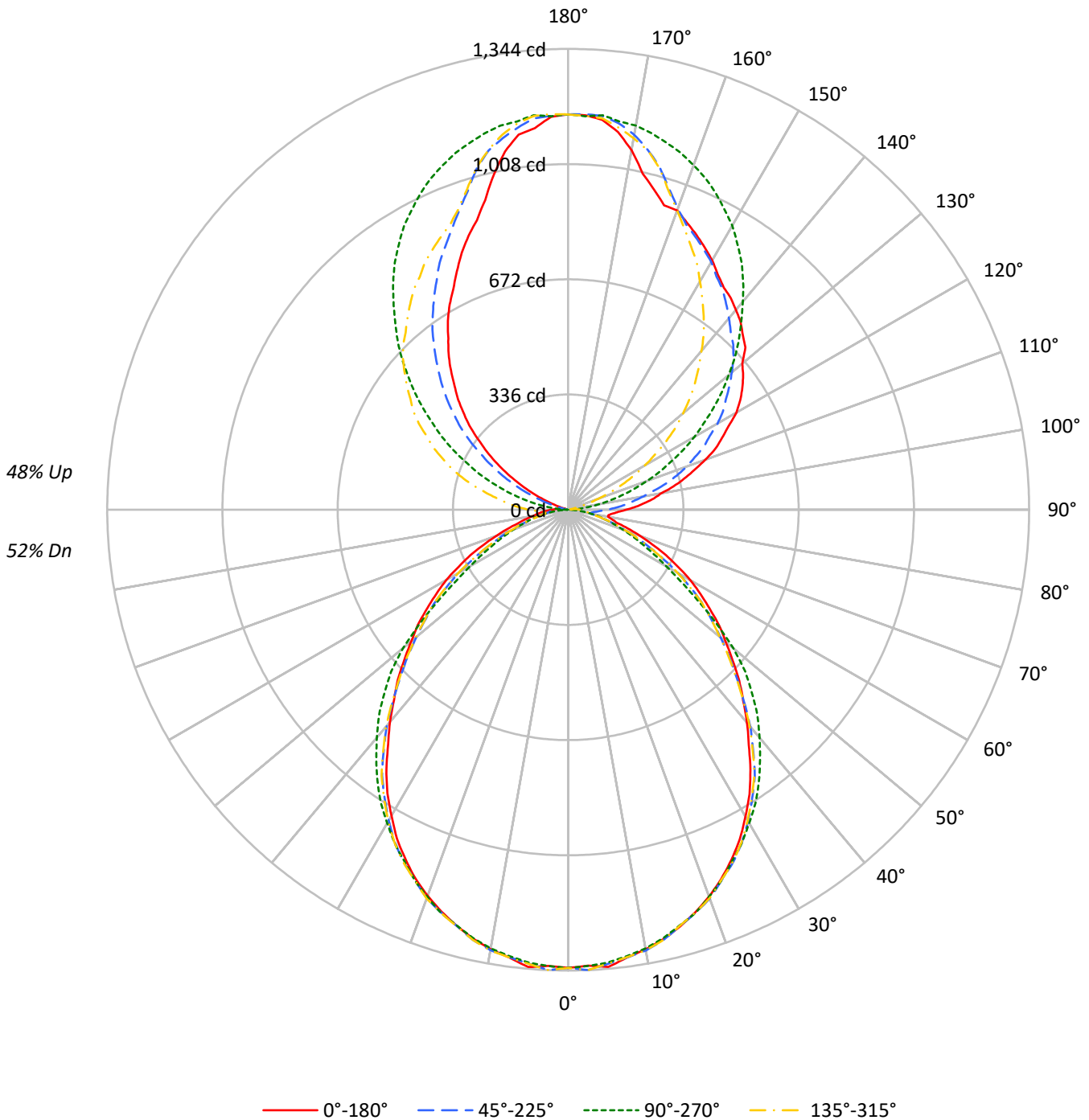
Lumens per Lamp: N/A
Luminaire Lumens: 5804.0 lumens
Efficiency: N/A
Efficacy: 88.5 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 65.6
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58	52
1	99	94	91	87	91	88	84	81	75	72	70	63	61	60	52	51	50	45
2	90	83	77	72	83	77	72	67	66	62	59	56	53	51	46	44	43	38
3	83	73	66	60	76	68	62	57	59	54	50	50	46	43	41	39	37	33
4	76	65	57	51	70	61	54	49	52	47	43	45	41	37	37	34	32	29
5	70	58	50	44	64	54	47	42	47	42	37	40	36	33	34	31	28	25
6	64	52	44	39	59	49	42	37	43	37	33	36	32	29	31	28	25	22
7	60	47	40	34	55	44	37	32	39	33	29	33	29	26	28	25	22	20
8	55	43	35	30	51	40	34	29	35	30	26	31	26	23	26	23	20	18
9	52	39	32	27	48	37	30	26	32	27	23	28	24	21	24	21	18	16
10	48	36	29	24	45	34	28	23	30	25	21	26	22	19	22	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	17261	17261	17261	17261
5°	17047	15804	17047	15804
10°	16467	14489	16467	14489
15°	15941	13239	15909	13239
20°	15340	12107	15308	12107
25°	14631	10991	14598	10991
30°	13758	9980	13716	9980
35°	12747	8990	12714	8990
40°	11643	7954	11595	7954
45°	10656	6926	10620	6926
50°	9651	5758	9612	5758
55°	8730	4274	8702	4274
60°	7810	3122	7793	3122
65°	6650	2319	6650	2319
70°	5334	1722	5354	1722
75°	4119	1201	4186	1201
80°	4013	764	3485	764
85°	5680	321	3362	321



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.0	2.2
10°-20°	354.6	6.1
20°-30°	519.9	9.0
30°-40°	589.9	10.2
40°-50°	550.4	9.5
50°-60°	431.8	7.4
60°-70°	269.6	4.6
70°-80°	130.7	2.3
80°-90°	73.9	1.3
90°-100°	96.1	1.7
100°-110°	178.0	3.1
110°-120°	306.6	5.3
120°-130°	416.6	7.2
130°-140°	475.2	8.2
140°-150°	473.9	8.2
150°-160°	412.7	7.1
160°-170°	290.1	5.0
170°-180°	108.0	1.9
0°-30°	1000.5	17.2
0°-40°	1590.4	27.4
0°-60°	2572.5	44.3
0°-90°	3046.8	52.5
90°-120°	580.7	10.0
90°-150°	1946.4	33.5
90°-180°	2757.0	47.5
0°-180°	5804.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1336	1336	1336	1336	1336	
5°	1339	1326	1339	1326	1339	126
15°	1259	1255	1256	1255	1259	355
25°	1126	1131	1124	1131	1126	518
35°	926	969	924	969	926	578
45°	705	758	702	758	705	543
55°	503	461	501	461	503	451
65°	315	239	315	239	315	311
75°	147	114	149	114	147	166
85°	130	27	77	27	130	104
90°	168	2	46	2	168	93
95°	223	34	30	34	223	194
105°	350	161	8	161	350	370
115°	495	330	114	330	495	491
125°	620	516	283	516	620	554
135°	720	705	453	705	720	556
145°	791	881	610	881	791	499
155°	884	1018	767	1018	884	408
165°	967	1108	935	1108	967	274
175°	1141	1154	1117	1154	1141	106
180°	1153	1153	1153	1153	1153	



TEST NUMBER: P392527

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1336.3	1336.3	1336.3	1336.3	1336.3	1336.3	1336.3	1336.3	1336.3	1336.3	1336.3
2.5°	1331.0	1339.3	1343.8	1331.2	1332.1	1330.3	1343.8	1339.3	1331.7	1339.3	1343.8
5°	1338.7	1329.6	1329.3	1328.4	1325.5	1328.4	1328.6	1329.6	1338.7	1329.6	1328.6
7.5°	1317.2	1323.7	1316.9	1315.8	1312.9	1315.0	1316.1	1322.8	1317.2	1322.8	1316.1
10°	1301.6	1306.3	1305.3	1298.6	1299.5	1297.7	1304.5	1304.7	1301.6	1304.7	1304.5
12.5°	1282.9	1286.0	1285.1	1277.4	1279.5	1277.4	1285.1	1284.4	1281.3	1284.4	1285.1
15°	1258.6	1258.0	1257.1	1254.2	1255.3	1253.4	1256.3	1256.3	1256.1	1256.3	1256.3
17.5°	1231.6	1233.8	1232.9	1233.1	1233.1	1233.1	1232.1	1232.9	1229.0	1232.9	1232.1
20°	1200.6	1205.5	1206.8	1201.2	1201.4	1200.4	1206.0	1203.9	1198.1	1203.9	1206.0
22.5°	1165.9	1166.9	1169.1	1161.6	1169.5	1160.8	1168.3	1165.2	1164.3	1165.2	1168.3
25°	1126.3	1127.2	1136.1	1131.6	1130.8	1130.8	1134.5	1124.8	1123.8	1124.8	1134.5
27.5°	1083.7	1083.7	1095.5	1091.7	1096.0	1091.0	1093.9	1081.3	1081.3	1081.3	1093.9
30°	1033.4	1042.1	1048.9	1062.6	1055.4	1061.0	1046.5	1039.7	1030.2	1039.7	1046.5
32.5°	984.1	988.9	998.6	1008.5	1015.5	1006.8	996.2	985.8	980.9	985.8	996.2
35°	926.3	926.3	948.5	966.9	969.3	964.5	946.1	923.9	923.9	923.9	946.1
37.5°	864.4	866.3	885.7	913.7	918.8	911.3	883.3	863.9	862.0	863.9	883.3
40°	811.2	807.3	825.7	861.6	867.6	860.0	822.4	804.1	807.9	804.1	822.4
42.5°	755.1	749.3	758.1	802.6	817.3	801.1	755.7	746.0	751.8	746.0	755.7
45°	704.9	693.3	695.3	736.8	758.3	735.3	692.1	690.9	702.5	690.9	692.1
47.5°	649.8	646.0	638.2	665.5	700.3	664.7	635.0	643.5	647.4	643.5	635.0
50°	599.5	591.8	580.2	602.6	628.0	601.0	577.0	588.6	597.1	588.6	577.0
52.5°	555.1	548.3	526.2	539.8	544.8	538.1	523.8	545.1	552.6	545.1	523.8
55°	503.0	502.1	479.8	473.2	460.8	471.6	477.4	499.6	501.4	499.6	477.4
57.5°	456.6	454.7	422.8	411.4	388.2	409.7	420.4	452.3	455.0	452.3	420.4
60°	411.4	404.6	369.8	341.8	330.2	341.1	368.1	402.9	410.5	402.9	368.1
62.5°	361.1	357.2	314.7	284.8	282.1	284.0	313.0	355.6	360.2	355.6	313.0
65°	314.8	300.3	264.5	237.4	238.6	236.6	263.7	299.5	314.8	299.5	263.7
67.5°	265.4	250.9	220.0	195.0	202.8	195.0	219.2	250.2	265.4	250.2	219.2
70°	222.1	202.8	179.6	159.3	170.9	159.3	179.6	203.6	222.9	203.6	179.6
72.5°	182.5	162.2	144.8	130.3	140.0	129.4	144.8	162.9	184.1	162.9	144.8
75°	146.7	128.3	112.0	104.2	113.9	104.2	112.8	129.1	149.1	129.1	112.8
77.5°	130.0	107.3	84.9	81.0	92.6	81.0	85.8	104.9	126.7	104.9	85.8
80°	117.7	101.3	68.1	60.7	68.5	60.7	66.4	88.4	102.2	88.4	66.4
82.5°	118.8	106.7	67.2	43.3	47.2	43.3	57.4	77.4	87.9	77.4	57.4
85°	129.6	120.4	75.4	35.2	26.9	33.6	51.8	70.9	76.7	70.9	51.8
87.5°	146.2	141.9	92.2	39.6	7.7	28.2	45.8	63.7	62.5	63.7	45.8
90°	168.3	165.0	114.7	48.9	1.7	18.1	34.2	50.3	46.3	50.3	34.2
92.5°	198.2	191.4	139.0	65.5	14.0	9.4	27.6	41.0	38.9	41.0	27.6
95°	223.2	218.3	166.2	85.6	33.5	4.3	19.8	29.7	30.5	29.7	19.8
97.5°	252.2	246.2	191.4	114.8	58.7	10.7	11.6	22.6	24.6	22.6	11.6
100°	275.2	271.5	222.1	149.8	89.6	27.8	6.7	16.1	19.0	16.1	6.7
102.5°	314.8	302.2	255.5	183.1	122.9	51.3	13.2	9.4	12.3	9.4	13.2
105°	350.0	338.5	295.3	218.1	161.2	83.1	32.7	11.7	7.6	11.7	32.7
107.5°	385.0	376.8	332.1	253.8	201.8	119.7	61.3	32.0	20.6	32.0	61.3
110°	425.6	415.8	367.1	289.6	244.1	158.7	93.0	58.0	45.1	58.0	93.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	464.6	457.3	399.6	328.0	288.0	202.0	132.0	90.6	78.3	90.6	132.0
115°	494.7	490.7	437.0	363.0	329.6	250.0	175.1	128.8	114.1	128.8	175.1
117.5°	526.4	525.7	464.6	398.8	378.4	293.0	215.0	167.0	151.5	167.0	215.0
120°	566.3	559.8	502.8	434.6	424.8	338.5	258.9	210.9	195.4	210.9	258.9
122.5°	594.9	589.9	535.3	468.7	468.7	385.0	301.2	253.2	237.9	253.2	301.2
125°	620.1	618.5	560.8	502.8	515.9	428.0	349.3	300.5	282.7	300.5	349.3
127.5°	642.9	645.3	592.5	541.2	564.8	473.0	395.7	342.0	323.3	342.0	395.7
130°	662.4	670.5	622.5	575.4	610.4	520.9	437.1	383.4	371.2	383.4	437.1
132.5°	700.6	695.8	653.4	610.4	659.1	564.8	481.1	424.9	411.1	424.9	481.1
135°	720.1	721.8	680.3	640.4	704.6	608.7	522.5	467.3	453.4	467.3	522.5
137.5°	743.7	738.8	701.4	677.0	746.9	651.0	563.2	511.9	490.0	511.9	563.2
140°	760.7	760.0	729.0	709.6	792.5	692.5	604.7	552.6	532.2	552.6	604.7
142.5°	778.6	783.6	756.7	745.4	838.0	736.4	649.3	592.5	572.9	592.5	649.3
145°	790.8	802.4	784.3	790.0	881.1	785.2	688.4	631.6	609.5	631.6	688.4
147.5°	812.2	826.0	805.6	821.7	918.5	828.2	728.4	671.5	652.8	671.5	728.4
150°	839.8	846.3	834.1	865.7	956.7	876.2	768.3	709.7	691.0	709.7	768.3
152.5°	861.8	869.9	856.1	913.6	986.8	920.2	812.2	747.1	725.1	747.1	812.2
155°	884.5	887.8	878.0	960.0	1018.5	963.2	847.1	788.6	767.4	788.6	847.1
157.5°	905.7	912.2	899.8	994.9	1046.2	1000.6	886.0	830.1	811.3	830.1	886.0
160°	928.4	928.4	933.9	1035.6	1068.9	1033.1	928.3	875.6	849.6	875.6	928.3
162.5°	930.8	946.3	980.3	1064.1	1090.9	1061.7	973.9	908.1	885.4	908.1	973.9
165°	966.6	979.5	1032.4	1089.3	1108.0	1086.8	1029.9	960.8	934.9	960.8	1029.9
167.5°	1004.0	1032.4	1074.6	1117.7	1124.2	1110.4	1073.0	1025.0	1001.6	1025.0	1073.0
170°	1064.1	1089.3	1110.4	1128.3	1137.3	1129.2	1099.9	1076.3	1060.8	1076.3	1099.9
172.5°	1111.1	1128.3	1136.4	1147.8	1142.1	1138.9	1124.2	1112.9	1103.7	1112.9	1124.2
175°	1141.1	1145.4	1152.8	1149.7	1154.5	1145.5	1145.4	1151.1	1116.8	1151.1	1145.4
177.5°	1151.8	1157.4	1154.3	1148.0	1148.8	1147.1	1149.5	1151.8	1146.9	1151.8	1149.5
180°	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8



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CATALOG NUMBER: MWL-2-28-31-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1336.3	1336.3	1336.3	1336.3	1336.3	1336.3
2.5°	1330.3	1332.1	1331.2	1343.8	1339.3	1331.0
5°	1328.4	1325.5	1328.4	1329.3	1329.6	1338.7
7.5°	1315.0	1312.9	1315.8	1316.9	1323.7	1317.2
10°	1297.7	1299.5	1298.6	1305.3	1306.3	1301.6
12.5°	1277.4	1279.5	1277.4	1285.1	1286.0	1282.9
15°	1253.4	1255.3	1254.2	1257.1	1258.0	1258.6
17.5°	1233.1	1233.1	1233.1	1232.9	1233.8	1231.6
20°	1200.4	1201.4	1201.2	1206.8	1205.5	1200.6
22.5°	1160.8	1169.5	1161.6	1169.1	1166.9	1165.9
25°	1130.8	1130.8	1131.6	1136.1	1127.2	1126.3
27.5°	1091.0	1096.0	1091.7	1095.5	1083.7	1083.7
30°	1061.0	1055.4	1062.6	1048.9	1042.1	1033.4
32.5°	1006.8	1015.5	1008.5	998.6	988.9	984.1
35°	964.5	969.3	966.9	948.5	926.3	926.3
37.5°	911.3	918.8	913.7	885.7	866.3	864.4
40°	860.0	867.6	861.6	825.7	807.3	811.2
42.5°	801.1	817.3	802.6	758.1	749.3	755.1
45°	735.3	758.3	736.8	695.3	693.3	704.9
47.5°	664.7	700.3	665.5	638.2	646.0	649.8
50°	601.0	628.0	602.6	580.2	591.8	599.5
52.5°	538.1	544.8	539.8	526.2	548.3	555.1
55°	471.6	460.8	473.2	479.8	502.1	503.0
57.5°	409.7	388.2	411.4	422.8	454.7	456.6
60°	341.1	330.2	341.8	369.8	404.6	411.4
62.5°	284.0	282.1	284.8	314.7	357.2	361.1
65°	236.6	238.6	237.4	264.5	300.3	314.8
67.5°	195.0	202.8	195.0	220.0	250.9	265.4
70°	159.3	170.9	159.3	179.6	202.8	222.1
72.5°	129.4	140.0	130.3	144.8	162.2	182.5
75°	104.2	113.9	104.2	112.0	128.3	146.7
77.5°	81.0	92.6	81.0	84.9	107.3	130.0
80°	60.7	68.5	60.7	68.1	101.3	117.7
82.5°	43.3	47.2	43.3	67.2	106.7	118.8
85°	33.6	26.9	35.2	75.4	120.4	129.6
87.5°	28.2	7.7	39.6	92.2	141.9	146.2
90°	18.1	1.7	48.9	114.7	165.0	168.3
92.5°	9.4	14.0	65.5	139.0	191.4	198.2
95°	4.3	33.5	85.6	166.2	218.3	223.2
97.5°	10.7	58.7	114.8	191.4	246.2	252.2
100°	27.8	89.6	149.8	222.1	271.5	275.2
102.5°	51.3	122.9	183.1	255.5	302.2	314.8
105°	83.1	161.2	218.1	295.3	338.5	350.0
107.5°	119.7	201.8	253.8	332.1	376.8	385.0
110°	158.7	244.1	289.6	367.1	415.8	425.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	202.0	288.0	328.0	399.6	457.3	464.6
115°	250.0	329.6	363.0	437.0	490.7	494.7
117.5°	293.0	378.4	398.8	464.6	525.7	526.4
120°	338.5	424.8	434.6	502.8	559.8	566.3
122.5°	385.0	468.7	468.7	535.3	589.9	594.9
125°	428.0	515.9	502.8	560.8	618.5	620.1
127.5°	473.0	564.8	541.2	592.5	645.3	642.9
130°	520.9	610.4	575.4	622.5	670.5	662.4
132.5°	564.8	659.1	610.4	653.4	695.8	700.6
135°	608.7	704.6	640.4	680.3	721.8	720.1
137.5°	651.0	746.9	677.0	701.4	738.8	743.7
140°	692.5	792.5	709.6	729.0	760.0	760.7
142.5°	736.4	838.0	745.4	756.7	783.6	778.6
145°	785.2	881.1	790.0	784.3	802.4	790.8
147.5°	828.2	918.5	821.7	805.6	826.0	812.2
150°	876.2	956.7	865.7	834.1	846.3	839.8
152.5°	920.2	986.8	913.6	856.1	869.9	861.8
155°	963.2	1018.5	960.0	878.0	887.8	884.5
157.5°	1000.6	1046.2	994.9	899.8	912.2	905.7
160°	1033.1	1068.9	1035.6	933.9	928.4	928.4
162.5°	1061.7	1090.9	1064.1	980.3	946.3	930.8
165°	1086.8	1108.0	1089.3	1032.4	979.5	966.6
167.5°	1110.4	1124.2	1117.7	1074.6	1032.4	1004.0
170°	1129.2	1137.3	1128.3	1110.4	1089.3	1064.1
172.5°	1138.9	1142.1	1147.8	1136.4	1128.3	1111.1
175°	1145.5	1154.5	1149.7	1152.8	1145.4	1141.1
177.5°	1147.1	1148.8	1148.0	1154.3	1157.4	1151.8
180°	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8

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