

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: P392619

Luminaire Tested: **MWL-3-53-28-UNV-L830-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392619  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-13 &  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MWL-3-53-28-UNV-L830-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7789.0 lumens  
Efficiency: N/A  
Efficacy: 80.1 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: Semi-Indirect

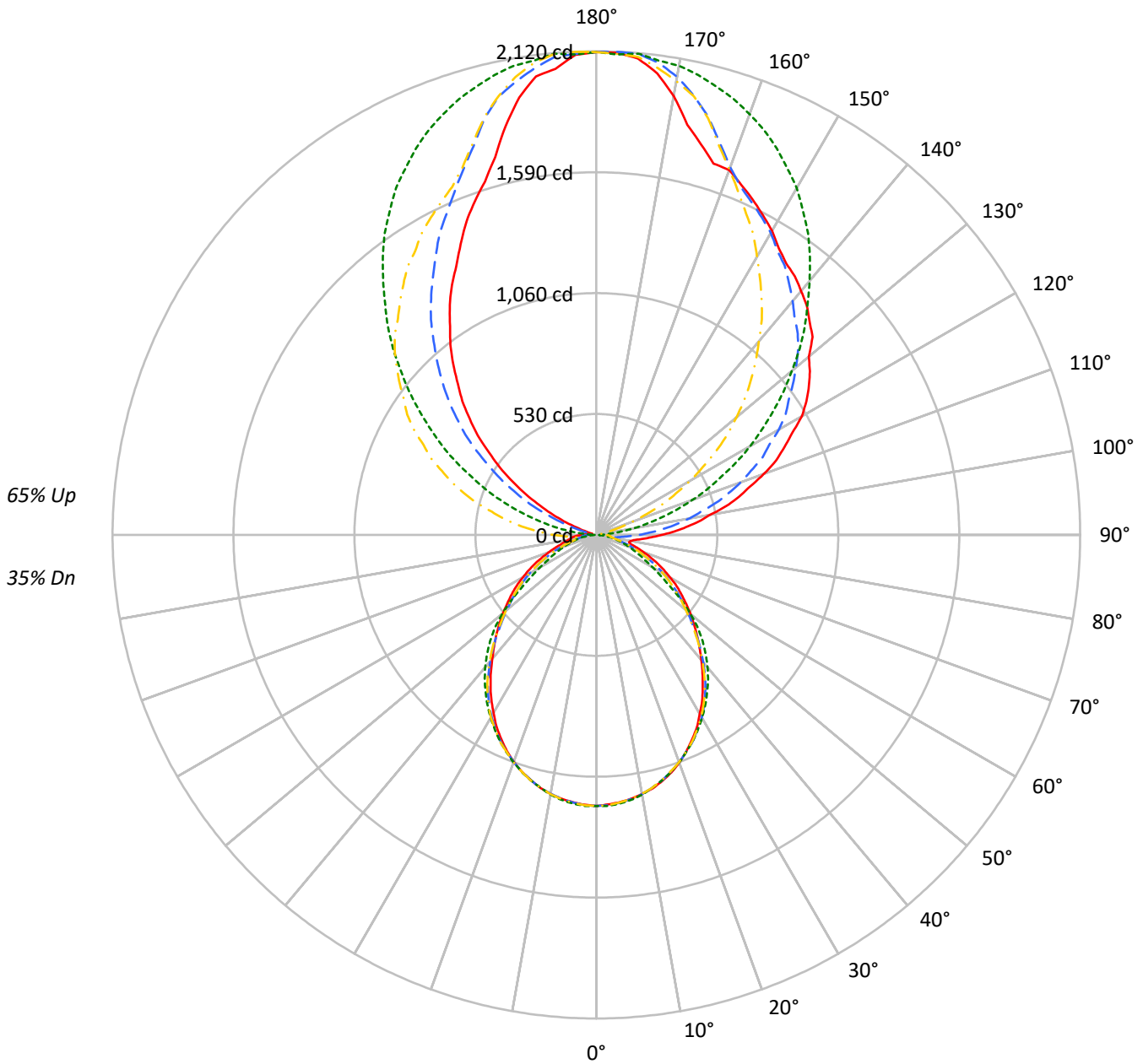
Input Watts (W): 97.3  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot



— 0°-180°    - - 45°-225°    - - - 90°-270°    - - - 135°-315°



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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	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43	35
1	94	90	86	83	85	82	79	76	66	64	62	51	50	48	38	37	36	30
2	86	79	73	68	78	72	67	62	58	54	51	45	43	41	33	32	31	25
3	79	70	63	57	71	63	57	52	51	47	43	40	37	35	30	28	26	22
4	72	62	54	48	65	56	50	45	46	41	37	36	33	30	27	25	23	19
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20	16
6	61	49	42	36	55	45	38	33	37	32	28	29	26	23	22	20	18	15
7	56	44	37	31	51	41	34	29	33	28	25	27	23	20	20	18	16	13
8	52	40	33	28	47	37	30	26	30	25	22	24	21	18	19	16	14	12
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	15	13	11
10	45	34	27	22	41	31	25	21	26	21	18	21	17	15	16	13	12	10

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	10232	10232	10232	10232
5°	10043	9395	10043	9395
10°	9841	8597	9841	8597
15°	9595	7827	9556	7827
20°	9268	7127	9229	7127
25°	8843	6469	8803	6469
30°	8345	5834	8289	5834
35°	7788	5230	7745	5230
40°	7198	4634	7138	4634
45°	6674	4008	6627	4008
50°	6181	3287	6131	3287
55°	5698	2431	5660	2431
60°	5173	1795	5153	1795
65°	4622	1356	4622	1356
70°	3989	1006	4018	1006
75°	3429	726	3530	726
80°	4236	482	3448	482
85°	7652	203	3941	203



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	111.8	1.4
10°-20°	313.7	4.0
20°-30°	457.8	5.9
30°-40°	517.6	6.6
40°-50°	484.0	6.2
50°-60°	382.1	4.9
60°-70°	250.2	3.2
70°-80°	131.6	1.7
80°-90°	94.6	1.2
90°-100°	165.4	2.1
100°-110°	327.0	4.2
110°-120°	561.9	7.2
120°-130°	763.5	9.8
130°-140°	871.1	11.2
140°-150°	869.0	11.2
150°-160°	756.9	9.7
160°-170°	532.5	6.8
170°-180°	198.3	2.5
0°-30°	883.3	11.3
0°-40°	1400.8	18.0
0°-60°	2266.9	29.1
0°-90°	2743.4	35.2
90°-120°	1054.3	13.5
90°-150°	3557.9	45.7
90°-180°	5046.0	64.8
0°-180°	7789.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1188	1188	1188	1188	1188	
5°	1176	1182	1176	1182	1176	112
15°	1116	1113	1112	1113	1116	314
25°	991	998	986	998	991	456
35°	813	846	808	846	813	508
45°	624	658	620	658	624	482
55°	455	393	452	393	455	407
65°	294	209	294	209	294	292
75°	156	103	161	103	156	178
85°	200	26	103	26	200	154
90°	286	2	61	2	286	158
95°	394	61	40	61	394	346
105°	647	296	17	296	647	681
115°	908	604	208	604	908	901
125°	1137	946	516	946	1137	1015
135°	1321	1292	830	1292	1321	1020
145°	1451	1616	1118	1616	1451	915
155°	1622	1870	1406	1870	1622	748
165°	1772	2034	1714	2034	1772	503
175°	2096	2118	2051	2118	2096	195
180°	2116	2116	2116	2116	2116	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1188.2	1188.2	1188.2	1188.2	1188.2	1188.2	1188.2	1188.2	1188.2	1188.2	1188.2
2.5°	1182.7	1185.7	1185.9	1188.3	1189.2	1186.8	1185.9	1185.7	1184.2	1185.7	1185.9
5°	1176.0	1179.0	1179.1	1180.1	1182.0	1180.1	1177.6	1179.0	1176.0	1179.0	1177.6
7.5°	1167.0	1169.9	1168.0	1170.5	1171.5	1169.0	1166.5	1168.4	1167.0	1168.4	1166.5
10°	1153.0	1154.6	1153.6	1154.6	1156.5	1153.0	1152.1	1151.6	1153.0	1151.6	1152.1
12.5°	1138.8	1137.3	1134.8	1135.8	1134.3	1135.8	1134.8	1134.3	1135.8	1134.3	1134.8
15°	1116.3	1115.2	1113.7	1115.6	1113.2	1114.2	1112.2	1112.2	1111.8	1112.2	1112.2
17.5°	1092.3	1090.3	1087.8	1089.2	1089.2	1089.2	1086.3	1088.7	1087.8	1088.7	1086.3
20°	1062.5	1063.0	1060.9	1062.3	1060.8	1060.8	1059.5	1059.9	1058.0	1059.9	1059.5
22.5°	1028.5	1030.4	1029.2	1032.6	1030.1	1031.0	1027.8	1027.3	1025.4	1027.3	1027.8
25°	991.0	993.9	999.1	999.9	998.4	998.4	996.1	989.4	986.5	989.4	996.1
27.5°	952.6	955.5	960.7	964.9	962.9	963.5	957.7	951.0	948.1	951.0	957.7
30°	906.6	912.3	923.8	929.0	925.5	926.0	919.3	907.8	900.5	907.8	919.3
32.5°	862.4	867.2	879.7	889.7	887.6	886.7	875.2	861.2	856.4	861.2	875.2
35°	812.9	815.8	832.1	846.5	845.8	842.0	827.6	811.2	808.4	811.2	827.6
37.5°	763.9	764.9	782.2	802.3	803.2	797.8	777.6	760.4	759.4	760.4	777.6
40°	715.0	713.1	728.4	751.8	758.1	748.9	722.5	707.1	709.0	707.1	722.5
42.5°	668.9	662.2	674.1	701.0	709.1	698.0	669.7	656.2	663.0	656.2	669.7
45°	624.2	612.7	619.4	643.4	658.2	640.4	613.4	608.2	619.8	608.2	613.4
47.5°	580.0	569.5	566.6	585.3	602.6	583.8	560.6	565.0	575.6	565.0	560.6
50°	537.8	526.3	517.6	528.7	537.7	525.7	511.7	520.3	533.4	520.3	511.7
52.5°	495.6	485.0	470.1	472.0	467.6	469.1	465.6	479.0	491.1	479.0	465.6
55°	454.8	445.2	426.0	415.8	393.2	412.8	421.5	440.7	451.8	440.7	421.5
57.5°	416.4	407.7	383.7	359.2	334.7	356.2	379.2	403.2	413.4	403.2	379.2
60°	372.6	367.8	340.0	303.0	284.8	301.5	337.0	364.8	371.2	364.8	337.0
62.5°	334.2	328.5	296.8	256.0	241.0	254.4	293.8	325.5	332.8	325.5	293.8
65°	294.4	285.7	253.1	213.8	209.3	212.2	251.6	284.2	294.4	284.2	251.6
67.5°	255.0	246.4	215.7	179.6	176.7	179.6	214.1	244.9	255.0	244.9	214.1
70°	218.9	205.5	178.6	147.9	149.8	147.9	178.6	207.0	220.5	207.0	178.6
72.5°	186.3	167.1	146.9	122.0	125.4	120.6	146.9	168.6	189.3	168.6	146.9
75°	156.5	135.4	113.8	97.5	103.3	97.5	115.3	137.0	161.1	137.0	115.3
77.5°	146.5	116.4	88.9	77.4	85.0	77.4	90.3	112.0	140.4	112.0	90.3
80°	152.7	118.3	74.1	59.1	64.9	59.1	71.1	94.3	124.3	94.3	71.1
82.5°	168.4	136.7	80.5	41.8	44.7	41.8	62.6	82.8	111.6	82.8	62.6
85°	200.4	170.1	103.9	36.7	25.5	33.7	60.5	78.8	103.2	78.8	60.5
87.5°	239.8	216.7	139.6	51.4	6.7	30.5	54.3	73.2	85.8	73.2	54.3
90°	285.6	265.9	185.7	76.1	2.5	19.3	37.6	55.0	61.3	55.0	37.6
92.5°	342.8	321.1	235.3	115.8	24.9	12.6	30.4	44.3	49.7	44.3	30.4
95°	394.4	383.5	292.8	158.4	60.8	8.8	23.7	36.6	40.0	36.6	23.7
97.5°	452.6	443.2	352.0	210.3	107.1	18.9	21.4	31.9	33.8	31.9	21.4
100°	504.1	499.8	411.6	274.6	163.9	50.3	15.3	30.2	33.1	30.2	15.3
102.5°	582.7	560.9	469.1	335.9	225.3	93.7	23.4	22.6	26.4	22.6	23.4
105°	646.7	622.0	542.3	400.2	295.5	152.0	59.3	20.8	17.2	20.8	59.3
107.5°	706.2	691.4	608.1	466.1	370.3	219.3	110.1	57.2	36.3	57.2	110.1
110°	781.0	763.1	672.5	531.8	448.1	291.1	168.4	105.1	81.2	105.1	168.4



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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°	852.8	839.4	732.2	600.7	528.9	368.9	240.2	164.9	142.5	164.9	240.2
115°	908.2	900.7	802.0	665.0	603.6	457.1	320.5	235.3	208.3	235.3	320.5
117.5°	966.4	965.0	852.8	730.7	693.4	536.3	393.7	305.5	277.1	305.5	393.7
120°	1039.8	1027.8	923.2	796.6	778.6	620.0	474.4	386.2	357.8	386.2	474.4
122.5°	1090.6	1083.2	983.0	859.3	859.3	705.3	552.3	464.0	434.1	464.0	552.3
125°	1137.0	1133.9	1027.8	922.2	946.1	784.6	639.0	549.2	516.4	549.2	639.0
127.5°	1178.9	1183.4	1086.1	990.9	1034.3	865.4	724.2	625.5	591.2	625.5	724.2
130°	1214.8	1229.7	1141.4	1053.8	1118.1	953.6	800.5	701.8	679.4	701.8	800.5
132.5°	1285.0	1276.1	1198.2	1118.1	1207.7	1034.3	881.2	778.0	752.6	778.0	881.2
135°	1320.9	1323.9	1247.7	1174.3	1291.5	1116.0	957.5	855.8	830.4	855.8	957.5
137.5°	1364.3	1355.3	1286.5	1241.6	1369.3	1193.8	1032.3	938.0	897.7	938.0	1032.3
140°	1395.7	1394.1	1337.3	1301.4	1453.1	1270.0	1108.6	1012.8	975.5	1012.8	1108.6
142.5°	1428.6	1437.5	1388.2	1367.3	1536.8	1350.9	1190.8	1086.1	1050.2	1086.1	1190.8
145°	1451.0	1470.5	1439.1	1449.5	1616.1	1440.5	1262.6	1156.4	1117.5	1156.4	1262.6
147.5°	1488.4	1513.8	1476.4	1507.9	1684.9	1519.8	1334.3	1229.7	1195.3	1229.7	1334.3
150°	1539.3	1551.2	1528.8	1588.6	1756.1	1608.0	1407.7	1300.0	1265.6	1300.0	1407.7
152.5°	1579.6	1594.6	1569.1	1676.8	1811.4	1688.8	1488.4	1368.8	1328.4	1368.8	1488.4
155°	1621.5	1627.5	1609.5	1762.0	1869.7	1768.1	1552.7	1445.0	1406.1	1445.0	1552.7
157.5°	1660.4	1672.3	1651.4	1826.4	1920.6	1836.8	1625.9	1521.3	1486.9	1521.3	1625.9
160°	1702.2	1702.2	1714.2	1901.1	1962.5	1896.6	1703.8	1605.0	1557.2	1605.0	1703.8
162.5°	1706.8	1735.2	1799.5	1953.5	2002.9	1949.0	1787.5	1664.9	1623.0	1664.9	1787.5
165°	1772.5	1797.9	1895.2	1999.9	2034.3	1995.4	1890.7	1763.6	1714.2	1763.6	1890.7
167.5°	1841.3	1895.2	1972.9	2052.2	2064.1	2038.8	1969.9	1881.7	1836.8	1881.7	1969.9
170°	1953.5	1999.9	2038.8	2071.6	2088.1	2073.1	2019.3	1975.9	1947.5	1975.9	2019.3
172.5°	2040.8	2071.6	2086.6	2107.5	2097.0	2091.1	2064.1	2043.2	2027.3	2043.2	2064.1
175°	2096.1	2103.1	2116.5	2109.0	2117.9	2101.5	2103.1	2113.5	2051.2	2113.5	2103.1
177.5°	2115.5	2127.0	2119.5	2106.0	2107.5	2104.5	2110.5	2116.5	2106.5	2116.5	2110.5
180°	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5



TEST NUMBER: P392619

CATALOG NUMBER: MWL-3-53-28-UNV-L830-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1188.2	1188.2	1188.2	1188.2	1188.2	1188.2
2.5°	1186.8	1189.2	1188.3	1185.9	1185.7	1182.7
5°	1180.1	1182.0	1180.1	1179.1	1179.0	1176.0
7.5°	1169.0	1171.5	1170.5	1168.0	1169.9	1167.0
10°	1153.0	1156.5	1154.6	1153.6	1154.6	1153.0
12.5°	1135.8	1134.3	1135.8	1134.8	1137.3	1138.8
15°	1114.2	1113.2	1115.6	1113.7	1115.2	1116.3
17.5°	1089.2	1089.2	1089.2	1087.8	1090.3	1092.3
20°	1060.8	1060.8	1062.3	1060.9	1063.0	1062.5
22.5°	1031.0	1030.1	1032.6	1029.2	1030.4	1028.5
25°	998.4	998.4	999.9	999.1	993.9	991.0
27.5°	963.5	962.9	964.9	960.7	955.5	952.6
30°	926.0	925.5	929.0	923.8	912.3	906.6
32.5°	886.7	887.6	889.7	879.7	867.2	862.4
35°	842.0	845.8	846.5	832.1	815.8	812.9
37.5°	797.8	803.2	802.3	782.2	764.9	763.9
40°	748.9	758.1	751.8	728.4	713.1	715.0
42.5°	698.0	709.1	701.0	674.1	662.2	668.9
45°	640.4	658.2	643.4	619.4	612.7	624.2
47.5°	583.8	602.6	585.3	566.6	569.5	580.0
50°	525.7	537.7	528.7	517.6	526.3	537.8
52.5°	469.1	467.6	472.0	470.1	485.0	495.6
55°	412.8	393.2	415.8	426.0	445.2	454.8
57.5°	356.2	334.7	359.2	383.7	407.7	416.4
60°	301.5	284.8	303.0	340.0	367.8	372.6
62.5°	254.4	241.0	256.0	296.8	328.5	334.2
65°	212.2	209.3	213.8	253.1	285.7	294.4
67.5°	179.6	176.7	179.6	215.7	246.4	255.0
70°	147.9	149.8	147.9	178.6	205.5	218.9
72.5°	120.6	125.4	122.0	146.9	167.1	186.3
75°	97.5	103.3	97.5	113.8	135.4	156.5
77.5°	77.4	85.0	77.4	88.9	116.4	146.5
80°	59.1	64.9	59.1	74.1	118.3	152.7
82.5°	41.8	44.7	41.8	80.5	136.7	168.4
85°	33.7	25.5	36.7	103.9	170.1	200.4
87.5°	30.5	6.7	51.4	139.6	216.7	239.8
90°	19.3	2.5	76.1	185.7	265.9	285.6
92.5°	12.6	24.9	115.8	235.3	321.1	342.8
95°	8.8	60.8	158.4	292.8	383.5	394.4
97.5°	18.9	107.1	210.3	352.0	443.2	452.6
100°	50.3	163.9	274.6	411.6	499.8	504.1
102.5°	93.7	225.3	335.9	469.1	560.9	582.7
105°	152.0	295.5	400.2	542.3	622.0	646.7
107.5°	219.3	370.3	466.1	608.1	691.4	706.2
110°	291.1	448.1	531.8	672.5	763.1	781.0





TEST NUMBER: P392619

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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	368.9	528.9	600.7	732.2	839.4	852.8
115°	457.1	603.6	665.0	802.0	900.7	908.2
117.5°	536.3	693.4	730.7	852.8	965.0	966.4
120°	620.0	778.6	796.6	923.2	1027.8	1039.8
122.5°	705.3	859.3	859.3	983.0	1083.2	1090.6
125°	784.6	946.1	922.2	1027.8	1133.9	1137.0
127.5°	865.4	1034.3	990.9	1086.1	1183.4	1178.9
130°	953.6	1118.1	1053.8	1141.4	1229.7	1214.8
132.5°	1034.3	1207.7	1118.1	1198.2	1276.1	1285.0
135°	1116.0	1291.5	1174.3	1247.7	1323.9	1320.9
137.5°	1193.8	1369.3	1241.6	1286.5	1355.3	1364.3
140°	1270.0	1453.1	1301.4	1337.3	1394.1	1395.7
142.5°	1350.9	1536.8	1367.3	1388.2	1437.5	1428.6
145°	1440.5	1616.1	1449.5	1439.1	1470.5	1451.0
147.5°	1519.8	1684.9	1507.9	1476.4	1513.8	1488.4
150°	1608.0	1756.1	1588.6	1528.8	1551.2	1539.3
152.5°	1688.8	1811.4	1676.8	1569.1	1594.6	1579.6
155°	1768.1	1869.7	1762.0	1609.5	1627.5	1621.5
157.5°	1836.8	1920.6	1826.4	1651.4	1672.3	1660.4
160°	1896.6	1962.5	1901.1	1714.2	1702.2	1702.2
162.5°	1949.0	2002.9	1953.5	1799.5	1735.2	1706.8
165°	1995.4	2034.3	1999.9	1895.2	1797.9	1772.5
167.5°	2038.8	2064.1	2052.2	1972.9	1895.2	1841.3
170°	2073.1	2088.1	2071.6	2038.8	1999.9	1953.5
172.5°	2091.1	2097.0	2107.5	2086.6	2071.6	2040.8
175°	2101.5	2117.9	2109.0	2116.5	2103.1	2096.1
177.5°	2104.5	2107.5	2106.0	2119.5	2127.0	2115.5
180°	2116.5	2116.5	2116.5	2116.5	2116.5	2116.5

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