

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: P392588

Luminaire Tested: **MWL-3-30-47-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392588  
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-3-30-47-UNV-L840-EDD  
Description: MWL 3FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

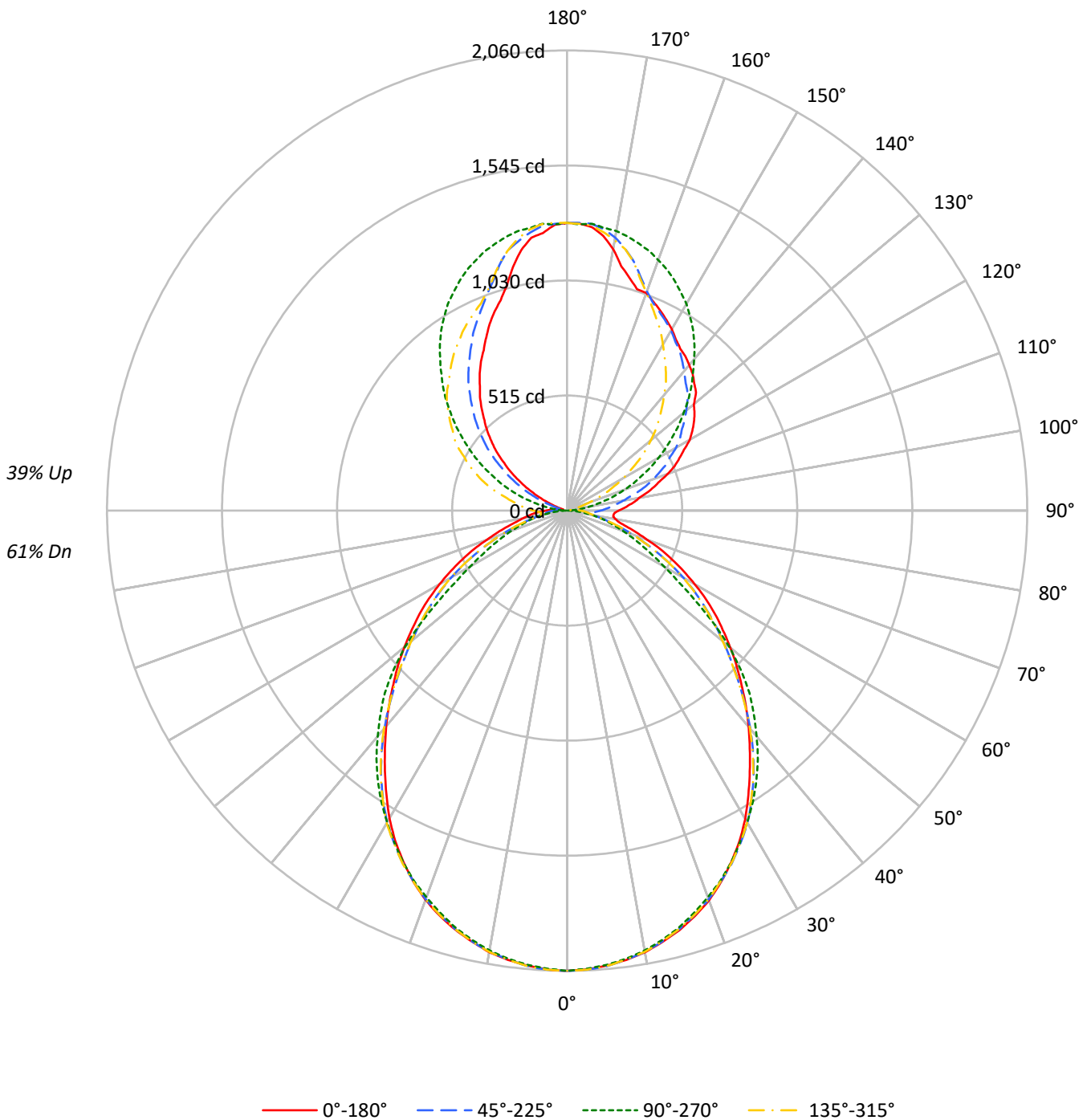
Lumens per Lamp: N/A  
Luminaire Lumens: 7861.1 lumens  
Efficiency: N/A  
Efficacy: 94.9 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.17 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 3' x H: 0.42')  
CIE Type: Semi-Direct

Input Watts (W): 82.8  
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



TEST NUMBER: P392588  
CATALOG NUMBER: MWL-3-30-47-UNV-L840-EDD

### 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	89	89	89	77	77	77	66	66	66	61
1	100	96	92	89	94	90	87	84	79	76	74	68	66	65	59	57	56	51
2	92	84	78	73	86	79	74	69	69	65	62	60	57	55	52	50	48	44
3	84	75	67	61	78	70	64	58	62	57	52	54	50	47	46	44	41	38
4	77	66	58	52	72	62	55	50	55	50	45	48	44	40	42	39	36	33
5	71	59	51	45	66	56	49	43	49	44	39	43	39	35	38	34	32	29
6	66	53	45	40	61	50	43	38	45	39	34	39	35	31	35	31	28	25
7	61	48	40	35	57	46	39	33	41	35	31	36	31	28	32	28	25	23
8	56	44	36	31	53	42	35	30	37	31	27	33	28	25	29	25	23	20
9	53	40	33	28	49	38	31	27	34	29	25	31	26	22	27	23	20	18
10	49	37	30	25	46	35	29	24	32	26	22	28	24	20	25	21	19	17

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

	0°	90°	180°	270°
0°	17742	17742	17742	17742
5°	17461	16225	17461	16225
10°	17133	14862	17133	14862
15°	16710	13587	16686	13587
20°	16200	12373	16176	12373
25°	15503	11253	15478	11253
30°	14676	10159	14642	10159
35°	13656	9130	13629	9130
40°	12720	8065	12682	8065
45°	11798	7024	11770	7024
50°	10958	5780	10927	5780
55°	10129	4314	10106	4314
60°	9157	3163	9144	3163
65°	8128	2390	8128	2390
70°	6921	1772	6938	1772
75°	5978	1279	6037	1279
80°	6089	809	5612	809
85°	7961	341	5705	341



TEST NUMBER: P392588

CATALOG NUMBER: MWL-3-30-47-UNV-L840-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	193.9	2.5
10°-20°	546.0	6.9
20°-30°	800.0	10.2
30°-40°	906.8	11.5
40°-50°	852.8	10.8
50°-60°	677.0	8.6
60°-70°	440.7	5.6
70°-80°	225.0	2.9
80°-90°	118.3	1.5
90°-100°	123.1	1.6
100°-110°	202.7	2.6
110°-120°	343.1	4.4
120°-130°	465.7	5.9
130°-140°	530.9	6.8
140°-150°	529.4	6.7
150°-160°	460.8	5.9
160°-170°	324.1	4.1
170°-180°	120.7	1.5
0°-30°	1540.0	19.6
0°-40°	2446.8	31.1
0°-60°	3976.6	50.6
0°-90°	4760.6	60.6
90°-120°	668.9	8.5
90°-150°	2194.9	27.9
90°-180°	3100.0	39.4
0°-180°	7861.1	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2060	2060	2060	2060	2060	
5°	2045	2041	2045	2041	2045	194
15°	1944	1932	1941	1932	1944	548
25°	1737	1737	1734	1737	1737	799
35°	1425	1477	1423	1477	1425	892
45°	1103	1154	1101	1154	1103	853
55°	808	698	807	698	808	722
65°	518	369	518	369	518	514
75°	273	182	276	182	273	299
85°	208	43	149	43	208	173
90°	230	2	94	2	230	128
95°	277	37	62	37	277	238
105°	400	181	17	181	400	423
115°	554	368	129	368	554	550
125°	693	577	316	577	693	619
135°	805	787	507	787	805	621
145°	884	984	681	984	884	557
155°	987	1137	857	1137	987	455
165°	1079	1238	1044	1238	1079	306
175°	1274	1289	1247	1289	1274	119
180°	1288	1288	1288	1288	1288	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2060.4	2060.4	2060.4	2060.4	2060.4	2060.4	2060.4	2060.4	2060.4	2060.4	2060.4
2.5°	2055.6	2058.4	2057.3	2054.2	2052.2	2053.3	2057.3	2058.4	2056.5	2058.4	2057.3
5°	2044.6	2047.4	2047.3	2043.3	2041.3	2043.3	2046.4	2047.4	2044.6	2047.4	2046.4
7.5°	2028.5	2032.4	2027.4	2026.3	2023.3	2025.4	2026.4	2031.4	2028.5	2031.4	2026.4
10°	2007.4	2009.4	2006.4	2001.4	1999.4	2000.4	2005.4	2007.5	2007.4	2007.5	2005.4
12.5°	1977.3	1977.4	1974.4	1970.4	1968.5	1970.4	1974.4	1975.5	1975.4	1975.5	1974.4
15°	1944.2	1941.4	1939.4	1936.4	1932.5	1935.5	1938.5	1939.5	1941.4	1939.5	1938.5
17.5°	1903.2	1901.4	1897.4	1894.5	1888.5	1894.5	1896.5	1900.4	1900.4	1900.4	1896.5
20°	1857.2	1854.3	1852.4	1847.5	1841.6	1846.6	1851.5	1852.4	1854.4	1852.4	1851.5
22.5°	1800.3	1800.3	1797.4	1796.5	1793.6	1795.6	1796.5	1798.4	1798.4	1798.4	1796.5
25°	1737.3	1739.3	1743.4	1741.5	1736.6	1740.6	1741.5	1736.5	1734.5	1736.5	1741.5
27.5°	1669.3	1672.3	1679.4	1683.4	1675.6	1682.5	1677.5	1669.5	1666.5	1669.5	1677.5
30°	1594.3	1599.3	1615.3	1621.4	1611.6	1619.5	1612.5	1596.5	1590.6	1596.5	1612.5
32.5°	1509.3	1517.3	1536.3	1550.4	1547.5	1548.5	1533.5	1513.6	1505.6	1513.6	1533.5
35°	1425.4	1432.4	1455.4	1477.4	1476.6	1474.6	1452.6	1429.6	1422.6	1429.6	1452.6
37.5°	1342.4	1343.4	1367.4	1397.4	1402.5	1394.6	1364.6	1340.6	1339.6	1340.6	1364.6
40°	1263.4	1260.4	1276.4	1311.4	1319.5	1309.6	1272.7	1256.7	1259.7	1256.7	1272.7
42.5°	1183.4	1172.4	1179.4	1222.4	1237.5	1220.6	1176.7	1168.7	1179.7	1168.7	1176.7
45°	1103.4	1088.4	1086.4	1124.4	1153.5	1122.6	1082.8	1085.7	1100.7	1085.7	1082.8
47.5°	1029.4	1010.4	996.4	1024.5	1053.5	1023.6	992.8	1007.7	1026.7	1007.7	992.8
50°	953.4	932.4	911.4	928.5	945.6	926.7	907.8	928.8	950.7	928.8	907.8
52.5°	878.4	861.4	830.5	829.5	822.6	827.7	827.8	857.8	875.7	857.8	827.8
55°	808.5	791.5	752.5	734.6	697.7	732.8	749.8	788.8	806.7	788.8	749.8
57.5°	735.5	722.5	677.5	633.6	587.7	631.8	674.8	719.8	733.7	719.8	674.8
60°	659.6	652.6	600.6	531.7	501.7	530.8	598.8	650.8	658.7	650.8	598.8
62.5°	587.6	581.6	522.6	448.7	429.8	447.8	520.8	579.8	586.7	579.8	520.8
65°	517.7	503.7	444.7	374.7	368.8	373.8	443.8	502.8	517.7	502.8	443.8
67.5°	451.7	433.7	372.7	313.8	313.8	313.8	371.8	432.8	451.7	432.8	371.8
70°	379.8	357.8	309.8	259.8	263.8	259.8	309.8	358.7	380.7	358.7	309.8
72.5°	324.8	288.8	251.8	210.8	218.9	209.9	251.8	289.7	326.6	289.7	251.8
75°	272.8	234.8	195.9	166.9	181.9	166.9	196.8	235.7	275.5	235.7	196.8
77.5°	236.1	193.4	150.9	130.9	145.9	130.9	151.8	190.7	232.4	190.7	151.8
80°	219.5	174.2	122.6	97.9	108.9	97.9	120.8	159.6	202.3	159.6	120.8
82.5°	208.3	168.1	111.5	70.9	77.9	70.9	100.6	135.4	173.8	135.4	100.6
85°	208.5	173.4	115.5	56.6	42.9	54.8	89.2	118.0	149.4	118.0	89.2
87.5°	214.1	192.0	127.8	58.3	13.0	45.5	76.1	104.8	120.6	104.8	76.1
90°	230.5	213.5	149.5	65.3	1.9	30.8	59.6	85.4	94.4	85.4	59.6
92.5°	255.5	239.6	173.1	81.5	15.5	18.8	48.7	71.6	77.5	71.6	48.7
95°	276.9	268.5	200.2	98.4	37.3	7.6	36.7	57.8	61.7	57.8	36.7
97.5°	305.9	298.3	225.1	129.1	65.5	12.9	24.4	48.6	51.6	48.6	24.4
100°	326.3	320.4	255.0	168.2	100.0	32.0	14.4	35.3	40.3	35.3	14.4
102.5°	365.0	349.1	287.2	205.4	137.2	58.3	16.6	22.3	27.3	22.3	16.6
105°	399.6	382.9	331.7	244.4	180.9	93.7	38.4	17.9	17.4	17.9	38.4
107.5°	433.6	422.6	371.6	284.4	226.3	134.6	69.3	37.6	26.9	37.6	69.3
110°	478.0	466.1	410.7	324.3	273.5	178.1	104.7	66.6	53.1	66.6	104.7



TEST NUMBER: P392588

CATALOG NUMBER: MWL-3-30-47-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	520.6	511.5	447.0	366.1	322.5	225.4	148.3	102.0	89.3	102.0	148.3
115°	554.2	548.7	488.8	405.1	367.9	278.9	196.4	144.6	129.3	144.6	196.4
117.5°	589.6	587.7	519.6	445.1	422.4	327.0	240.9	187.3	171.1	187.3	240.9
120°	634.1	626.9	562.3	485.0	474.1	377.9	289.9	237.3	220.1	237.3	289.9
122.5°	665.0	660.5	598.6	524.2	524.2	430.6	337.1	284.6	266.4	284.6	337.1
125°	693.1	691.3	625.9	562.3	576.8	478.8	389.8	336.3	316.3	336.3	389.8
127.5°	718.6	721.3	661.3	604.1	630.4	527.8	441.5	382.6	361.7	382.6	441.5
130°	740.4	749.4	695.9	642.2	681.2	581.4	488.8	428.9	415.3	428.9	488.8
132.5°	783.0	777.6	730.4	681.2	735.7	630.4	537.9	475.2	459.8	475.2	537.9
135°	804.8	806.6	760.3	714.8	786.6	679.4	584.2	522.4	507.0	522.4	584.2
137.5°	831.1	825.7	783.9	756.7	833.8	727.6	629.6	572.4	547.9	572.4	629.6
140°	850.2	849.3	814.8	793.0	884.6	773.9	675.9	617.8	595.1	617.8	675.9
142.5°	870.2	875.6	845.7	833.0	935.5	823.0	725.8	662.3	640.5	662.3	725.8
145°	883.8	895.6	876.5	882.9	983.6	877.5	769.4	704.9	681.3	704.9	769.4
147.5°	906.5	921.9	899.2	918.3	1025.4	925.6	813.0	749.4	728.5	749.4	813.0
150°	937.4	944.6	931.0	967.3	1068.0	979.1	857.5	792.1	771.2	792.1	857.5
152.5°	961.9	971.0	955.5	1020.9	1101.6	1028.2	906.5	833.9	809.4	833.9	906.5
155°	987.3	990.9	980.1	1072.7	1137.0	1076.3	945.5	880.2	856.6	880.2	945.5
157.5°	1010.9	1018.2	1005.5	1110.7	1167.9	1117.1	990.0	926.5	905.6	926.5	990.0
160°	1036.3	1036.3	1043.6	1157.1	1193.3	1154.4	1037.3	977.3	948.3	977.3	1037.3
162.5°	1039.1	1056.3	1095.4	1188.9	1218.8	1186.2	1088.1	1013.6	988.2	1013.6	1088.1
165°	1079.0	1094.5	1153.5	1217.0	1237.9	1214.3	1150.7	1073.6	1043.6	1073.6	1150.7
167.5°	1120.8	1153.5	1200.7	1248.8	1256.1	1240.6	1198.9	1145.3	1118.1	1145.3	1198.9
170°	1187.9	1216.0	1240.6	1260.6	1270.6	1261.5	1228.8	1201.5	1184.2	1201.5	1228.8
172.5°	1240.5	1259.6	1269.7	1282.4	1276.0	1272.4	1256.1	1242.4	1232.3	1242.4	1256.1
175°	1274.0	1278.7	1287.8	1283.3	1288.8	1278.8	1279.7	1285.0	1246.8	1285.0	1279.7
177.5°	1285.8	1293.2	1289.7	1281.5	1282.4	1280.6	1284.2	1286.8	1280.4	1286.8	1284.2
180°	1287.8	1287.8	1287.8	1287.8	1287.8	1287.8	1287.8	1287.8	1287.8	1287.8	1287.8



TEST NUMBER: P392588

CATALOG NUMBER: MWL-3-30-47-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2060.4	2060.4	2060.4	2060.4	2060.4	2060.4
2.5°	2053.3	2052.2	2054.2	2057.3	2058.4	2055.6
5°	2043.3	2041.3	2043.3	2047.3	2047.4	2044.6
7.5°	2025.4	2023.3	2026.3	2027.4	2032.4	2028.5
10°	2000.4	1999.4	2001.4	2006.4	2009.4	2007.4
12.5°	1970.4	1968.5	1970.4	1974.4	1977.4	1977.3
15°	1935.5	1932.5	1936.4	1939.4	1941.4	1944.2
17.5°	1894.5	1888.5	1894.5	1897.4	1901.4	1903.2
20°	1846.6	1841.6	1847.5	1852.4	1854.3	1857.2
22.5°	1795.6	1793.6	1796.5	1797.4	1800.3	1800.3
25°	1740.6	1736.6	1741.5	1743.4	1739.3	1737.3
27.5°	1682.5	1675.6	1683.4	1679.4	1672.3	1669.3
30°	1619.5	1611.6	1621.4	1615.3	1599.3	1594.3
32.5°	1548.5	1547.5	1550.4	1536.3	1517.3	1509.3
35°	1474.6	1476.6	1477.4	1455.4	1432.4	1425.4
37.5°	1394.6	1402.5	1397.4	1367.4	1343.4	1342.4
40°	1309.6	1319.5	1311.4	1276.4	1260.4	1263.4
42.5°	1220.6	1237.5	1222.4	1179.4	1172.4	1183.4
45°	1122.6	1153.5	1124.4	1086.4	1088.4	1103.4
47.5°	1023.6	1053.5	1024.5	996.4	1010.4	1029.4
50°	926.7	945.6	928.5	911.4	932.4	953.4
52.5°	827.7	822.6	829.5	830.5	861.4	878.4
55°	732.8	697.7	734.6	752.5	791.5	808.5
57.5°	631.8	587.7	633.6	677.5	722.5	735.5
60°	530.8	501.7	531.7	600.6	652.6	659.6
62.5°	447.8	429.8	448.7	522.6	581.6	587.6
65°	373.8	368.8	374.7	444.7	503.7	517.7
67.5°	313.8	313.8	313.8	372.7	433.7	451.7
70°	259.8	263.8	259.8	309.8	357.8	379.8
72.5°	209.9	218.9	210.8	251.8	288.8	324.8
75°	166.9	181.9	166.9	195.9	234.8	272.8
77.5°	130.9	145.9	130.9	150.9	193.4	236.1
80°	97.9	108.9	97.9	122.6	174.2	219.5
82.5°	70.9	77.9	70.9	111.5	168.1	208.3
85°	54.8	42.9	56.6	115.5	173.4	208.5
87.5°	45.5	13.0	58.3	127.8	192.0	214.1
90°	30.8	1.9	65.3	149.5	213.5	230.5
92.5°	18.8	15.5	81.5	173.1	239.6	255.5
95°	7.6	37.3	98.4	200.2	268.5	276.9
97.5°	12.9	65.5	129.1	225.1	298.3	305.9
100°	32.0	100.0	168.2	255.0	320.4	326.3
102.5°	58.3	137.2	205.4	287.2	349.1	365.0
105°	93.7	180.9	244.4	331.7	382.9	399.6
107.5°	134.6	226.3	284.4	371.6	422.6	433.6
110°	178.1	273.5	324.3	410.7	466.1	478.0





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	225.4	322.5	366.1	447.0	511.5	520.6
115°	278.9	367.9	405.1	488.8	548.7	554.2
117.5°	327.0	422.4	445.1	519.6	587.7	589.6
120°	377.9	474.1	485.0	562.3	626.9	634.1
122.5°	430.6	524.2	524.2	598.6	660.5	665.0
125°	478.8	576.8	562.3	625.9	691.3	693.1
127.5°	527.8	630.4	604.1	661.3	721.3	718.6
130°	581.4	681.2	642.2	695.9	749.4	740.4
132.5°	630.4	735.7	681.2	730.4	777.6	783.0
135°	679.4	786.6	714.8	760.3	806.6	804.8
137.5°	727.6	833.8	756.7	783.9	825.7	831.1
140°	773.9	884.6	793.0	814.8	849.3	850.2
142.5°	823.0	935.5	833.0	845.7	875.6	870.2
145°	877.5	983.6	882.9	876.5	895.6	883.8
147.5°	925.6	1025.4	918.3	899.2	921.9	906.5
150°	979.1	1068.0	967.3	931.0	944.6	937.4
152.5°	1028.2	1101.6	1020.9	955.5	971.0	961.9
155°	1076.3	1137.0	1072.7	980.1	990.9	987.3
157.5°	1117.1	1167.9	1110.7	1005.5	1018.2	1010.9
160°	1154.4	1193.3	1157.1	1043.6	1036.3	1036.3
162.5°	1186.2	1218.8	1188.9	1095.4	1056.3	1039.1
165°	1214.3	1237.9	1217.0	1153.5	1094.5	1079.0
167.5°	1240.6	1256.1	1248.8	1200.7	1153.5	1120.8
170°	1261.5	1270.6	1260.6	1240.6	1216.0	1187.9
172.5°	1272.4	1276.0	1282.4	1269.7	1259.6	1240.5
175°	1278.8	1288.8	1283.3	1287.8	1278.7	1274.0
177.5°	1280.6	1282.4	1281.5	1289.7	1293.2	1285.8
180°	1287.8	1287.8	1287.8	1287.8	1287.8	1287.8

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