

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P219504

Luminaire Tested: **LDSQ4B20D010 EU4B10208030 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219504
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35471)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQ4B20D010 EU4B10208030 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1580.4 lumens
Efficiency: N/A
Efficacy: 76.0 lumens/watt
Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

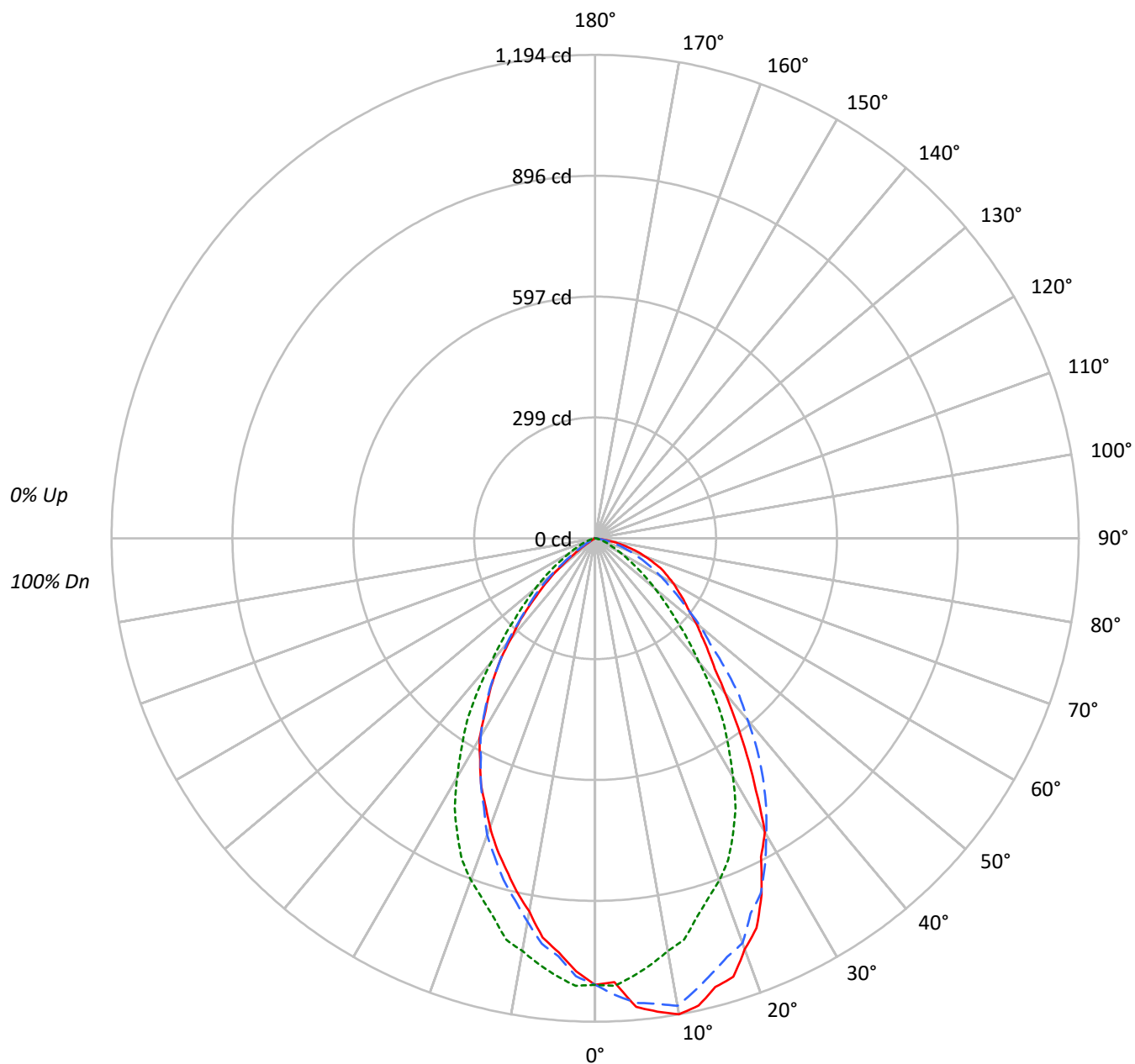
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	112	108	105	102	109	106	103	101	102	100	98		98	96	95		95
2	104	98	93	89	102	96	92	88	93	89	86		90	87	84		87
3	97	89	83	78	95	88	82	77	85	80	76		82	78	75		80
4	91	81	74	69	89	80	74	69	78	72	68		76	71	67		74
5	85	75	67	62	83	74	67	62	72	66	61		70	65	60		68
6	80	69	61	56	78	68	61	56	66	60	55		65	59	55		63
7	75	63	56	51	73	63	56	51	61	55	50		60	54	50		59
8	70	59	52	47	69	58	51	46	57	51	46		56	50	46		55
9	66	55	48	43	65	54	47	43	53	47	43		52	46	42		51
10	62	51	44	40	61	51	44	40	50	44	39		49	43	39		48

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	106815	106815	106815
5°	112999	105550	99891
10°	117434	101823	92074
15°	115086	97184	84988
20°	111350	92536	78227
25°	103865	86057	71360
30°	93763	76156	63884
35°	77238	65198	53006
40°	63029	50319	40797
45°	54157	38210	29346
50°	49011	29087	18522
55°	45096	20994	6705
60°	43284	14338	1027
65°	41811	9696	298
70°	37445	6741	368
75°	30692	3481	0
80°	19191	1450	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	103.3	6.5
10°-20°	278.3	17.6
20°-30°	371.6	23.5
30°-40°	352.8	22.3
40°-50°	243.9	15.4
50°-60°	134.7	8.5
60°-70°	66.9	4.2
70°-80°	26.4	1.7
80°-90°	2.5	0.2
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	753.2	47.7
0°-40°	1106.0	70.0
0°-60°	1484.6	93.9
0°-90°	1580.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1580.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1103	1103	1103	1103	1103	
5°	1162	1152	1085	1036	1027	111
15°	1148	1113	969	874	847	325
25°	972	968	805	668	668	443
35°	653	722	551	453	448	409
45°	395	453	279	229	214	308
55°	267	251	124	64	40	240
65°	182	132	42	1	1	177
75°	82	50	9	0	0	87
85°	0	1	0	0	0	8
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6
2.5°	1097.3	1127.7	1130.3	1127.7	1131.6	1130.3	1136.9	1130.3	1138.3	1126.4	1129.0
5°	1162.0	1150.1	1175.3	1162.0	1162.0	1160.7	1156.8	1155.4	1160.7	1143.5	1151.5
7.5°	1179.2	1196.4	1218.9	1191.1	1192.5	1192.5	1184.5	1181.9	1181.9	1150.1	1159.4
10°	1193.8	1183.2	1195.1	1184.5	1193.8	1192.5	1197.7	1180.6	1192.5	1173.9	1172.6
12.5°	1181.9	1177.9	1193.8	1176.6	1171.3	1172.6	1166.0	1162.0	1166.0	1144.9	1143.5
15°	1147.5	1151.5	1175.3	1156.8	1154.1	1151.5	1143.5	1130.3	1140.9	1111.8	1113.1
17.5°	1135.6	1129.0	1133.0	1117.1	1121.1	1118.4	1117.1	1105.2	1102.6	1084.0	1084.0
20°	1080.1	1094.6	1094.6	1084.0	1084.0	1082.7	1065.5	1076.1	1064.2	1058.9	1064.2
22.5°	1041.7	1043.1	1043.1	1033.8	1035.1	1029.8	1020.6	1014.0	1020.6	1014.0	1003.4
25°	971.7	974.3	990.2	973.0	970.4	975.6	967.7	963.7	962.4	946.6	967.7
27.5°	887.1	913.5	912.2	905.6	913.5	902.9	899.0	900.3	904.3	902.9	908.2
30°	838.2	842.1	846.1	840.8	842.1	838.2	838.2	839.5	850.1	846.1	844.8
32.5°	739.0	752.2	762.8	762.8	764.1	768.1	766.8	794.5	801.1	787.9	785.3
35°	653.1	662.3	671.6	672.9	690.1	691.4	692.7	700.7	719.2	723.1	721.8
37.5°	571.1	580.4	583.0	594.9	604.2	613.4	624.0	634.6	650.4	663.6	657.0
40°	498.4	502.4	509.0	514.3	532.8	532.8	538.1	559.2	576.4	587.0	585.7
42.5°	437.6	438.9	444.2	453.4	470.6	466.7	470.6	485.2	510.3	511.6	526.2
45°	395.3	394.0	397.9	399.2	409.8	415.1	417.8	428.3	449.5	452.1	453.4
47.5°	356.9	355.6	362.2	364.9	368.8	374.1	374.1	375.5	383.4	390.0	384.7
50°	325.2	325.2	325.2	327.9	334.5	333.1	334.5	339.8	343.7	341.1	339.8
52.5°	290.8	296.1	300.1	301.4	302.7	302.7	304.1	301.4	300.1	296.1	288.2
55°	267.0	272.3	272.3	272.3	272.3	277.6	271.0	272.3	272.3	261.8	251.2
57.5°	243.2	248.5	252.5	247.2	252.5	247.2	244.6	243.2	240.6	230.0	214.2
60°	223.4	226.1	224.7	223.4	226.1	222.1	219.5	214.2	211.5	197.0	186.4
62.5°	200.9	202.3	203.6	200.9	198.3	197.0	191.7	183.8	178.5	166.6	157.3
65°	182.4	178.5	177.1	175.8	173.2	169.2	165.3	156.0	152.0	141.5	132.2
67.5°	154.7	153.4	156.0	152.0	145.4	145.4	141.5	133.5	124.3	117.7	108.4
70°	132.2	130.9	128.2	124.3	122.9	117.7	117.7	108.4	105.8	93.9	85.9
72.5°	108.4	108.4	104.4	100.5	96.5	93.9	92.5	85.9	82.0	75.4	68.7
75°	82.0	82.0	80.6	76.7	74.0	71.4	70.1	64.8	60.8	54.2	50.2
77.5°	58.2	58.2	52.9	50.2	51.6	48.9	46.3	44.9	43.6	39.7	34.4
80°	34.4	33.1	29.1	30.4	29.1	29.1	27.8	26.4	23.8	21.2	18.5
82.5°	9.3	10.6	10.6	10.6	11.9	9.3	9.3	9.3	10.6	10.6	6.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3
87.5°	1.3	2.6	5.3	5.3	5.3	5.3	5.3	4.0	4.0	4.0	2.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6
2.5°	1115.8	1114.5	1115.8	1106.5	1127.7	1111.8	1109.2	1106.5	1115.8	1106.5	1093.3
5°	1139.6	1126.4	1122.4	1118.4	1130.3	1111.8	1107.8	1109.2	1102.6	1085.4	1086.7
7.5°	1147.5	1135.6	1123.7	1098.6	1109.2	1105.2	1094.6	1086.7	1076.1	1061.6	1058.9
10°	1150.1	1136.9	1119.7	1111.8	1095.9	1090.7	1086.7	1073.5	1060.3	1035.1	1028.5
12.5°	1142.2	1126.4	1105.2	1098.6	1086.7	1069.5	1060.3	1047.0	1035.1	1015.3	1000.8
15°	1107.8	1094.6	1088.0	1065.5	1060.3	1049.7	1031.2	1012.7	995.5	969.0	961.1
17.5°	1068.2	1062.9	1056.3	1039.1	1037.8	1027.2	1010.0	994.2	971.7	930.7	917.5
20°	1027.2	1027.2	1006.0	999.4	1012.7	991.5	978.3	963.7	917.5	897.6	873.8
22.5°	996.8	982.3	970.4	959.8	961.1	947.9	929.4	900.3	883.1	859.3	831.5
25°	937.3	942.6	916.2	912.2	916.2	885.7	876.5	852.7	827.6	805.1	784.0
27.5°	900.3	885.7	868.6	854.0	854.0	842.1	815.7	810.4	772.1	750.9	724.5
30°	844.8	834.2	819.6	798.5	795.9	786.6	765.4	752.2	712.6	680.8	666.3
32.5°	774.7	770.7	758.8	735.0	727.1	716.5	690.1	667.6	649.1	613.4	596.2
35°	724.5	709.9	684.8	665.0	658.4	639.9	618.7	602.8	583.0	551.3	528.8
37.5°	649.1	634.6	610.8	587.0	587.0	568.5	539.4	523.5	495.8	477.2	458.7
40°	583.0	564.5	540.7	512.9	509.0	482.5	470.6	444.2	427.0	397.9	395.3
42.5°	509.0	491.8	470.6	449.5	433.6	420.4	390.0	370.2	351.7	337.1	333.1
45°	441.6	419.1	400.6	374.1	358.3	342.4	322.6	309.4	294.8	278.9	269.7
47.5°	383.4	364.9	338.4	314.6	298.8	290.8	268.4	253.8	241.9	231.4	224.7
50°	323.9	301.4	286.9	260.4	257.8	239.3	220.8	208.9	202.3	193.0	183.8
52.5°	278.9	257.8	238.0	218.1	207.6	200.9	183.8	171.9	162.6	156.0	150.7
55°	235.3	216.8	200.9	181.1	174.5	165.3	145.4	142.8	133.5	124.3	117.7
57.5°	202.3	185.1	166.6	153.4	141.5	134.8	119.0	108.4	103.1	95.2	88.6
60°	171.9	153.4	138.8	122.9	117.7	108.4	96.5	87.3	80.6	74.0	67.4
62.5°	144.1	128.2	112.4	99.2	91.2	85.9	76.7	68.7	62.1	56.8	51.6
65°	119.0	104.4	91.2	78.0	74.0	67.4	60.8	54.2	48.9	42.3	37.0
67.5°	97.8	84.6	71.4	62.1	58.2	55.5	47.6	41.0	37.0	33.1	27.8
70°	76.7	67.4	56.8	48.9	44.9	41.0	35.7	31.7	26.4	23.8	19.8
72.5°	59.5	51.6	42.3	35.7	33.1	30.4	25.1	21.2	18.5	15.9	13.2
75°	42.3	35.7	30.4	23.8	22.5	21.2	17.2	14.5	11.9	9.3	7.9
77.5°	29.1	23.8	18.5	15.9	14.5	11.9	10.6	7.9	6.6	5.3	4.0
80°	15.9	11.9	9.3	7.9	6.6	5.3	5.3	4.0	2.6	2.6	1.3
82.5°	5.3	4.0	2.6	1.3	1.3	1.3	1.3	1.3	1.3	0.0	1.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6
2.5°	1101.2	1086.7	1090.7	1090.7	1088.0	1088.0	1085.4	1081.4	1082.7	1074.8	1057.6
5°	1089.3	1070.8	1068.2	1070.8	1060.3	1057.6	1052.3	1060.3	1036.5	1045.7	1035.1
7.5°	1055.0	1037.8	1033.8	1043.1	1029.8	1021.9	1020.6	1031.2	1010.0	999.4	987.5
10°	1016.6	1010.0	998.1	991.5	987.5	988.9	978.3	965.1	961.1	958.5	947.9
12.5°	982.3	967.7	957.1	949.2	946.6	946.6	929.4	926.7	914.8	912.2	896.3
15°	941.3	924.1	917.5	906.9	897.6	902.9	883.1	877.8	873.8	856.7	859.3
17.5°	905.6	887.1	871.2	864.6	856.7	848.7	830.2	834.2	824.9	824.9	801.1
20°	859.3	839.5	827.6	814.4	814.4	803.8	790.6	791.9	780.0	768.1	746.9
22.5°	810.4	789.2	774.7	769.4	756.2	753.5	737.7	733.7	717.9	719.2	700.7
25°	758.8	737.7	717.9	719.2	707.3	702.0	692.7	674.2	667.6	659.7	654.4
27.5°	698.0	683.5	666.3	665.0	642.5	643.8	631.9	626.6	610.8	614.7	602.8
30°	642.5	621.3	605.5	601.5	592.3	589.6	571.1	563.2	565.8	555.2	548.6
32.5°	585.7	553.9	547.3	539.4	534.1	527.5	514.3	519.5	507.7	510.3	499.7
35°	510.3	497.1	479.9	479.9	474.6	469.3	460.1	465.3	453.4	448.2	437.6
37.5°	446.8	434.9	417.8	423.0	413.8	405.9	397.9	399.2	388.7	387.3	376.8
40°	378.1	371.5	359.6	359.6	353.0	353.0	349.0	345.0	338.4	330.5	318.6
42.5°	313.3	308.0	302.7	304.1	294.8	302.7	292.2	298.8	277.6	276.3	268.4
45°	265.7	253.8	255.1	249.9	244.6	247.2	238.0	240.6	228.7	226.1	218.1
47.5°	215.5	211.5	203.6	200.9	200.9	197.0	193.0	191.7	186.4	179.8	169.2
50°	177.1	162.6	160.0	156.0	153.4	153.4	148.1	140.1	141.5	134.8	124.3
52.5°	138.8	126.9	121.6	120.3	115.0	112.4	105.8	100.5	96.5	93.9	87.3
55°	107.1	96.5	89.9	89.9	82.0	82.0	72.7	68.7	63.5	58.2	54.2
57.5°	80.6	75.4	68.7	63.5	60.8	54.2	48.9	42.3	38.3	30.4	25.1
60°	60.8	55.5	48.9	44.9	42.3	35.7	29.1	23.8	14.5	11.9	10.6
62.5°	44.9	39.7	33.1	30.4	27.8	22.5	15.9	7.9	4.0	4.0	4.0
65°	33.1	26.4	21.2	18.5	15.9	11.9	5.3	2.6	1.3	1.3	1.3
67.5°	22.5	17.2	11.9	10.6	7.9	4.0	1.3	1.3	1.3	1.3	1.3
70°	14.5	10.6	5.3	4.0	2.6	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	9.3	5.3	2.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	5.3	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6	1102.6
2.5°	1076.1	1066.9	1072.2	1060.3	1065.5	1074.8	1068.2	1070.8
5°	1039.1	1033.8	1027.2	1010.0	1023.2	1033.8	1028.5	1027.2
7.5°	999.4	980.9	990.2	984.9	982.3	992.8	980.9	994.2
10°	958.5	945.2	943.9	934.7	934.7	942.6	943.9	936.0
12.5°	897.6	891.0	891.0	889.7	888.4	896.3	897.6	893.7
15°	854.0	851.4	844.8	843.4	835.5	847.4	848.7	847.4
17.5°	801.1	802.5	795.9	795.9	801.1	805.1	794.5	805.1
20°	765.4	758.8	756.2	744.3	750.9	757.5	757.5	758.8
22.5°	713.9	703.3	707.3	700.7	696.7	706.0	706.0	709.9
25°	655.7	655.7	658.4	654.4	657.0	662.3	658.4	667.6
27.5°	600.2	605.5	605.5	600.2	602.8	618.7	625.3	614.7
30°	548.6	550.0	553.9	551.3	559.2	564.5	563.2	571.1
32.5°	490.5	497.1	499.7	495.8	498.4	510.3	503.7	502.4
35°	445.5	433.6	432.3	433.6	438.9	441.6	438.9	448.2
37.5°	380.7	376.8	371.5	372.8	376.8	382.1	384.7	391.3
40°	318.6	313.3	313.3	312.0	308.0	322.6	322.6	322.6
42.5°	264.4	263.1	256.5	256.5	261.8	265.7	263.1	272.3
45°	216.8	211.5	207.6	207.6	211.5	211.5	215.5	214.2
47.5°	170.5	165.3	166.6	162.6	166.6	171.9	165.3	166.6
50°	128.2	128.2	125.6	128.2	126.9	128.2	125.6	122.9
52.5°	87.3	99.2	100.5	95.2	83.3	72.7	66.1	71.4
55°	50.2	44.9	44.9	43.6	41.0	39.7	35.7	39.7
57.5°	25.1	22.5	22.5	22.5	21.2	19.8	17.2	17.2
60°	10.6	9.3	9.3	7.9	6.6	5.3	4.0	5.3
62.5°	4.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°













(END OF REPORT)