

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: P251939

Luminaire Tested: **LD4B30D010 EU4B30509027 4LBDW1H**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P251939
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-15)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LD4B30D010 EU4B30509027 4LBDW1H
Description: PORTFOLIO 4 INCH DOUBLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2069.0 lumens
Efficiency: N/A
Efficacy: 73.9 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.18 / 1.19
Luminous Opening: Circular (Dia: 0.38' x H: 0')
CIE Type: Direct

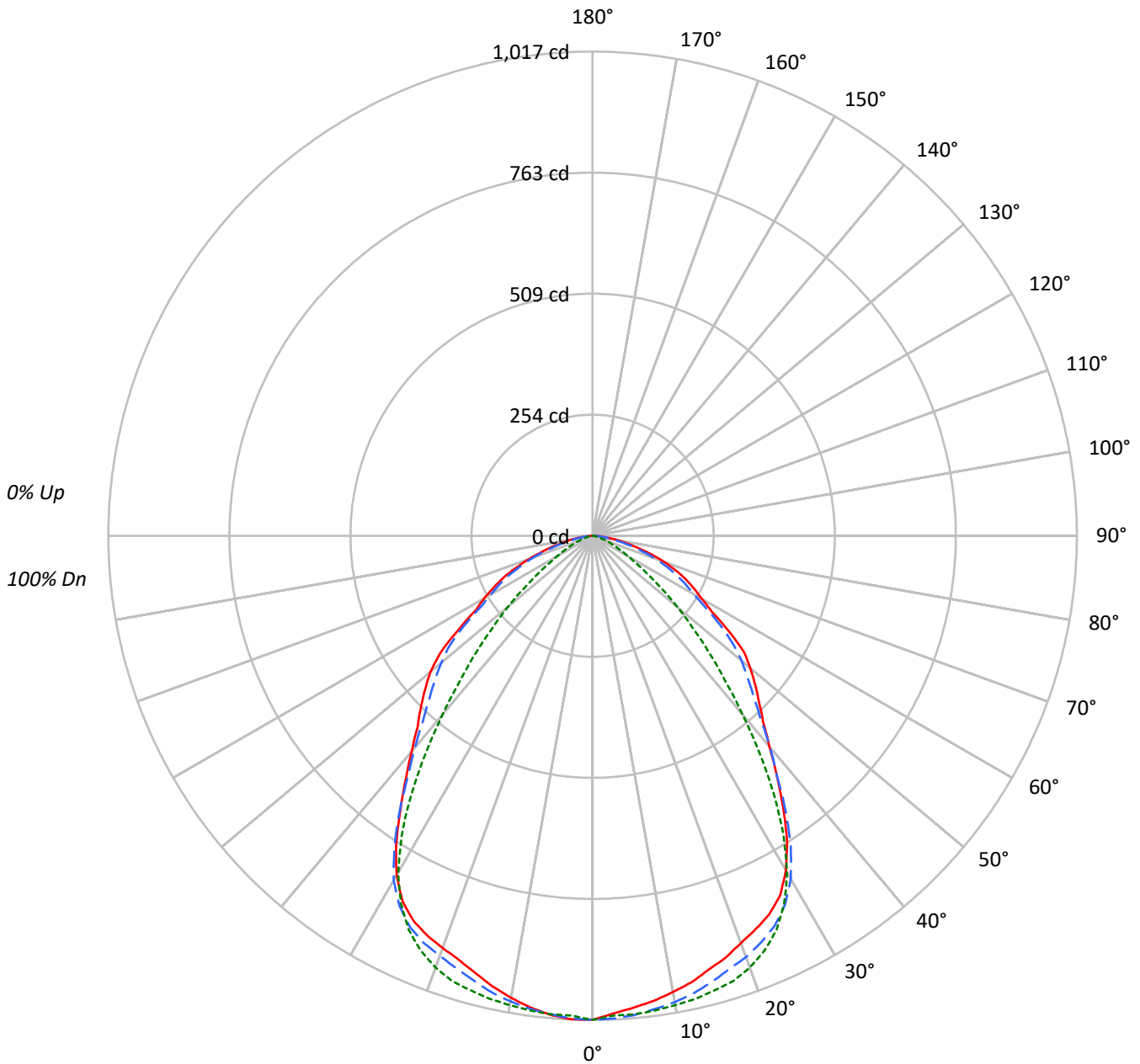
Input Watts (W): 28
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	89	88																			
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76																			
3	94	85	78	72	92	84	77	72	81	75	70	78	73	69	76	72	68	66																			
4	87	77	69	63	85	75	68	62	73	67	62	71	65	61	69	64	60	58																			
5	81	69	61	55	79	68	61	55	66	60	54	64	58	54	63	57	53	51																			
6	75	63	55	49	73	62	55	49	60	54	49	59	53	48	57	52	48	46																			
7	70	58	50	44	68	57	49	44	56	49	44	54	48	43	53	47	43	41																			
8	66	53	45	40	64	52	45	40	51	44	40	50	44	39	49	43	39	37																			
9	62	49	41	36	60	49	41	36	47	41	36	46	40	36	45	40	36	34																			
10	58	46	38	33	57	45	38	33	44	38	33	43	37	33	42	37	33	31																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	99076	99076	99076
5°	97312	98691	98848
10°	96270	99060	97507
15°	95155	99736	95942
20°	94410	100083	95540
25°	94350	98221	95866
30°	91345	91873	92582
35°	82997	79082	83734
40°	73420	62275	75214
45°	68114	47426	70278
50°	65453	35100	67349
55°	59266	24179	58467
60°	51516	16470	51224
65°	49765	11899	47251
70°	45022	8036	40121
75°	37090	5309	31818
80°	29858	3536	23684
85°	24489	1789	15767



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	96.0	4.6
10°-20°	274.4	13.3
20°-30°	414.5	20.0
30°-40°	433.8	21.0
40°-50°	351.4	17.0
50°-60°	255.6	12.4
60°-70°	157.6	7.6
70°-80°	71.2	3.4
80°-90°	14.5	0.7
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°	784.9	37.9
0°-40°	1218.7	58.9
0°-60°	1825.7	88.2
0°-90°	2069.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2069.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1017	1017	1017	1017	1017	
5°	995	1010	1009	1009	1010	94
15°	943	970	988	967	951	267
25°	877	904	913	907	892	402
35°	698	707	665	707	704	435
45°	494	479	344	485	510	384
55°	349	327	142	330	344	311
65°	216	194	52	191	205	211
75°	98	84	14	74	84	107
85°	22	17	2	12	14	25
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°	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6
2.5°	1004.1	1004.1	1013.5	1024.4	1015.1	1005.7	1011.9	1008.8	1019.8	1019.8	1015.1
5°	994.7	997.9	1005.7	1015.1	1007.2	997.9	1005.7	1002.5	1013.5	1013.5	1010.4
7.5°	985.3	986.9	996.3	1007.2	999.4	990.0	996.3	994.7	1004.1	1005.7	1002.5
10°	972.8	974.4	983.8	994.7	986.9	979.1	985.3	983.8	996.3	996.3	994.7
12.5°	960.3	961.9	971.3	980.7	972.8	965.0	971.3	971.3	983.8	985.3	983.8
15°	943.1	946.2	954.1	963.4	958.8	949.4	955.6	955.6	966.6	969.7	969.7
17.5°	929.0	930.6	938.4	947.8	941.6	933.7	940.0	940.0	950.9	954.1	954.1
20°	910.3	913.4	921.2	930.6	925.9	919.7	924.3	924.3	936.9	940.0	941.6
22.5°	894.6	897.8	904.0	916.5	908.7	904.0	910.3	908.7	922.8	924.3	924.3
25°	877.4	880.6	888.4	896.2	891.5	886.8	891.5	891.5	902.5	904.0	904.0
27.5°	852.4	854.0	861.8	869.6	864.9	858.7	864.9	863.3	874.3	875.9	874.3
30°	811.7	814.9	818.0	828.9	824.2	819.6	825.8	822.7	833.6	833.6	832.1
32.5°	760.1	760.1	766.4	774.2	767.9	764.8	769.5	771.1	778.9	778.9	774.2
35°	697.6	700.7	705.4	710.1	705.4	702.3	706.9	705.4	714.8	711.6	706.9
37.5°	635.0	636.6	641.3	647.5	641.3	636.6	638.1	636.6	644.4	644.4	636.6
40°	577.1	580.3	583.4	589.6	583.4	580.3	581.8	577.1	586.5	583.4	578.7
42.5°	530.2	531.8	536.5	539.6	533.3	531.8	533.3	530.2	534.9	531.8	522.4
45°	494.2	494.2	495.8	500.5	494.2	492.7	492.7	489.5	494.2	488.0	478.6
47.5°	463.0	464.5	466.1	469.2	464.5	459.8	461.4	455.1	458.3	453.6	441.1
50°	431.7	434.8	436.4	439.5	434.8	431.7	433.2	427.0	427.0	419.2	408.2
52.5°	400.4	402.0	400.4	403.5	400.4	395.7	397.3	391.0	391.0	381.6	370.7
55°	348.8	350.3	351.9	355.0	351.9	347.2	350.3	345.7	345.7	339.4	326.9
57.5°	297.2	298.7	300.3	301.9	301.9	298.7	300.3	297.2	295.6	290.9	281.5
60°	264.3	264.3	264.3	265.9	264.3	262.8	262.8	259.6	259.6	253.4	244.0
62.5°	239.3	240.9	240.9	242.4	240.9	239.3	237.7	234.6	233.0	226.8	219.0
65°	215.8	215.8	214.3	217.4	215.8	214.3	214.3	211.1	208.0	201.8	193.9
67.5°	187.7	189.2	187.7	189.2	189.2	187.7	186.1	183.0	181.4	176.7	167.4
70°	158.0	158.0	158.0	159.5	158.0	158.0	159.5	154.8	153.3	147.0	139.2
72.5°	128.3	129.8	129.8	128.3	129.8	126.7	126.7	126.7	125.1	118.9	111.0
75°	98.5	100.1	100.1	101.7	100.1	98.5	98.5	97.0	95.4	90.7	84.5
77.5°	73.5	73.5	75.1	75.1	75.1	73.5	73.5	70.4	70.4	67.3	61.0
80°	53.2	53.2	51.6	53.2	53.2	51.6	51.6	50.0	50.0	46.9	42.2
82.5°	34.4	36.0	36.0	36.0	36.0	34.4	34.4	34.4	32.8	31.3	28.2
85°	21.9	21.9	21.9	21.9	23.5	21.9	23.5	21.9	21.9	18.8	17.2
87.5°	9.4	9.4	9.4	10.9	10.9	9.4	9.4	9.4	9.4	9.4	7.8
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°	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6
2.5°	1015.1	1016.6	1011.9	1018.2	1013.5	1015.1	1016.6	1015.1	1008.8	1008.8	1026.0
5°	1008.8	1011.9	1007.2	1015.1	1011.9	1011.9	1015.1	1013.5	1007.2	1008.8	1024.4
7.5°	1002.5	1007.2	1004.1	1011.9	1007.2	1007.2	1010.4	1010.4	1004.1	1005.7	1019.8
10°	993.2	999.4	997.9	1005.7	1001.0	1001.0	1005.7	1005.7	999.4	1001.0	1015.1
12.5°	985.3	991.6	990.0	997.9	994.7	996.3	997.9	1001.0	993.2	996.3	1008.8
15°	972.8	979.1	979.1	986.9	983.8	986.9	990.0	994.7	988.5	988.5	1001.0
17.5°	958.8	966.6	966.6	972.8	972.8	974.4	980.7	985.3	979.1	980.7	991.6
20°	943.1	952.5	952.5	960.3	958.8	961.9	966.6	971.3	965.0	965.0	977.5
22.5°	927.5	935.3	936.9	941.6	941.6	943.1	947.8	950.9	943.1	943.1	955.6
25°	905.6	913.4	915.0	918.1	915.0	915.0	918.1	921.2	913.4	913.4	924.3
27.5°	875.9	883.7	883.7	882.1	879.0	880.6	879.0	880.6	872.7	871.2	882.1
30°	832.1	836.8	836.8	835.2	830.5	830.5	825.8	827.4	816.4	816.4	825.8
32.5°	772.6	777.3	774.2	771.1	764.8	761.7	758.6	757.0	746.0	746.0	757.0
35°	702.3	705.4	700.7	694.4	686.6	681.9	677.2	671.0	663.2	664.7	671.0
37.5°	630.3	630.3	624.1	611.5	605.3	597.5	589.6	589.6	577.1	575.6	580.3
40°	569.3	563.1	552.1	534.9	524.0	516.1	505.2	498.9	489.5	489.5	497.4
42.5°	514.6	502.1	488.0	464.5	453.6	444.2	430.1	423.9	412.9	411.3	416.0
45°	466.1	453.6	433.2	408.2	394.1	383.2	362.9	355.0	345.7	344.1	347.2
47.5°	427.0	412.9	387.9	355.0	341.0	326.9	306.6	295.6	287.8	283.1	287.8
50°	392.6	373.8	347.2	312.8	294.0	281.5	256.5	245.6	234.6	231.5	233.0
52.5°	355.0	336.3	308.1	272.1	254.9	236.2	212.7	197.1	187.7	183.0	187.7
55°	314.4	295.6	267.5	231.5	212.7	195.5	170.5	158.0	147.0	142.3	147.0
57.5°	270.6	253.4	228.3	192.4	175.2	159.5	136.1	123.6	112.6	109.5	112.6
60°	233.0	219.0	193.9	159.5	145.5	128.3	107.9	95.4	86.0	84.5	86.0
62.5°	208.0	192.4	168.9	136.1	122.0	107.9	89.2	76.6	68.8	67.3	68.8
65°	183.0	165.8	143.9	115.7	101.7	90.7	71.9	61.0	53.2	51.6	53.2
67.5°	154.8	139.2	120.4	95.4	84.5	73.5	57.9	46.9	40.7	39.1	40.7
70°	128.3	114.2	95.4	76.6	65.7	57.9	43.8	36.0	29.7	28.2	29.7
72.5°	101.7	89.2	73.5	57.9	51.6	43.8	34.4	26.6	21.9	20.3	21.9
75°	78.2	68.8	56.3	42.2	37.5	32.8	23.5	18.8	15.6	14.1	15.6
77.5°	54.7	48.5	39.1	31.3	26.6	23.5	17.2	12.5	10.9	9.4	10.9
80°	37.5	32.8	26.6	20.3	17.2	14.1	10.9	7.8	6.3	6.3	6.3
82.5°	25.0	20.3	15.6	12.5	10.9	9.4	6.3	4.7	4.7	3.1	3.1
85°	14.1	12.5	9.4	7.8	6.3	4.7	3.1	3.1	1.6	1.6	1.6
87.5°	6.3	4.7	3.1	3.1	1.6	1.6	1.6	1.6	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°	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6
2.5°	1021.3	1016.6	1022.9	1016.6	1013.5	1016.6	1013.5	1022.9	1015.1	1008.8	1015.1
5°	1019.8	1013.5	1019.8	1015.1	1010.4	1011.9	1008.8	1018.2	1008.8	1004.1	1007.2
7.5°	1016.6	1011.9	1015.1	1010.4	1005.7	1007.2	1004.1	1011.9	1002.5	997.9	1001.0
10°	1011.9	1007.2	1008.8	1005.7	1001.0	1001.0	997.9	1004.1	993.2	986.9	990.0
12.5°	1005.7	999.4	1002.5	997.9	991.6	991.6	988.5	993.2	982.2	976.0	977.5
15°	997.9	991.6	991.6	986.9	980.7	980.7	974.4	979.1	966.6	960.3	960.3
17.5°	988.5	980.7	980.7	976.0	968.1	966.6	961.9	966.6	952.5	946.2	946.2
20°	974.4	968.1	966.6	963.4	955.6	954.1	947.8	949.4	938.4	933.7	932.2
22.5°	955.6	949.4	950.9	946.2	940.0	938.4	932.2	936.9	925.9	921.2	922.8
25°	922.8	919.7	922.8	921.2	916.5	916.5	913.4	916.5	907.1	904.0	905.6
27.5°	885.2	883.7	885.2	885.2	882.1	882.1	882.1	886.8	877.4	875.9	875.9
30°	830.5	830.5	832.1	833.6	833.6	836.8	835.2	841.5	835.2	832.1	835.2
32.5°	758.6	764.8	769.5	769.5	769.5	772.6	775.8	780.5	774.2	775.8	775.8
35°	677.2	681.9	685.0	692.9	688.2	699.1	702.3	708.5	706.9	710.1	708.5
37.5°	586.5	592.8	599.0	610.0	608.4	620.9	627.2	639.7	636.6	642.8	645.9
40°	502.1	511.4	520.8	528.6	534.9	547.4	559.9	575.6	580.3	585.0	586.5
42.5°	420.7	430.1	445.8	456.7	466.1	486.4	503.6	522.4	527.1	536.5	539.6
45°	355.0	362.9	381.6	395.7	403.5	433.2	453.6	477.0	484.9	495.8	500.5
47.5°	294.0	308.1	326.9	344.1	355.0	386.3	412.9	437.9	448.9	461.4	467.6
50°	240.9	256.5	281.5	297.2	312.8	347.2	376.9	403.5	414.5	428.5	434.8
52.5°	197.1	214.3	237.7	254.9	272.1	308.1	339.4	364.4	378.5	387.9	397.3
55°	154.8	173.6	197.1	215.8	229.9	269.0	295.6	320.6	330.0	337.8	342.5
57.5°	120.4	134.5	158.0	173.6	190.8	225.2	251.8	270.6	278.4	287.8	290.9
60°	93.8	107.9	129.8	145.5	161.1	193.9	220.5	239.3	247.1	254.9	259.6
62.5°	75.1	89.2	109.5	123.6	137.6	167.4	190.8	209.6	219.0	226.8	231.5
65°	59.4	71.9	89.2	103.2	114.2	140.8	164.2	181.4	190.8	198.6	203.3
67.5°	46.9	57.9	73.5	82.9	93.8	115.7	136.1	151.7	159.5	168.9	173.6
70°	36.0	43.8	57.9	65.7	73.5	92.3	107.9	123.6	131.4	137.6	140.8
72.5°	26.6	32.8	43.8	50.0	54.7	70.4	82.9	93.8	100.1	106.4	109.5
75°	18.8	23.5	31.3	36.0	39.1	50.0	61.0	68.8	73.5	78.2	82.9
77.5°	12.5	15.6	20.3	23.5	26.6	34.4	40.7	46.9	51.6	56.3	57.9
80°	7.8	10.9	14.1	15.6	17.2	21.9	28.2	31.3	34.4	37.5	39.1
82.5°	4.7	6.3	7.8	9.4	10.9	14.1	17.2	20.3	21.9	25.0	26.6
85°	1.6	3.1	3.1	4.7	4.7	7.8	9.4	10.9	12.5	14.1	15.6
87.5°	0.0	0.0	1.6	1.6	1.6	1.6	3.1	3.1	3.1	3.1	3.1
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°	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6	1016.6
2.5°	1021.3	1016.6	1013.5	1011.9	1022.9	1008.8	1015.1	1016.6
5°	1015.1	1010.4	1007.2	1005.7	1015.1	1002.5	1007.2	1010.4
7.5°	1005.7	1002.5	997.9	996.3	1005.7	991.6	997.9	999.4
10°	994.7	990.0	986.9	985.3	993.2	979.1	985.3	985.3
12.5°	980.7	977.5	971.3	971.3	977.5	965.0	969.7	969.7
15°	961.9	958.8	952.5	952.5	958.8	946.2	950.9	950.9
17.5°	946.2	943.1	938.4	936.9	943.1	930.6	935.3	933.7
20°	933.7	930.6	924.3	924.3	929.0	916.5	921.2	921.2
22.5°	922.8	921.2	915.0	915.0	921.2	908.7	911.8	908.7
25°	905.6	904.0	897.8	899.3	902.5	889.9	894.6	891.5
27.5°	877.4	877.4	871.2	869.6	874.3	863.3	866.5	864.9
30°	833.6	835.2	827.4	827.4	828.9	819.6	824.2	822.7
32.5°	774.2	775.8	769.5	767.9	772.6	764.8	767.9	767.9
35°	708.5	710.1	705.4	705.4	710.1	705.4	705.4	703.8
37.5°	642.8	645.9	642.8	644.4	647.5	642.8	645.9	644.4
40°	589.6	592.8	588.1	591.2	594.3	589.6	594.3	591.2
42.5°	541.2	545.8	542.7	545.8	549.0	545.8	549.0	544.3
45°	505.2	508.3	506.7	508.3	511.4	509.9	511.4	509.9
47.5°	470.8	477.0	473.9	477.0	481.7	478.6	481.7	477.0
50°	439.5	444.2	442.6	445.8	447.3	445.8	448.9	444.2
52.5°	398.8	403.5	402.0	402.0	405.1	402.0	405.1	402.0
55°	345.7	347.2	347.2	348.8	347.2	345.7	347.2	344.1
57.5°	294.0	297.2	292.5	297.2	295.6	294.0	294.0	290.9
60°	261.2	265.9	262.8	265.9	264.3	264.3	264.3	262.8
62.5°	234.6	237.7	234.6	236.2	236.2	236.2	234.6	233.0
65°	204.9	209.6	206.5	208.0	206.5	204.9	206.5	204.9
67.5°	175.2	176.7	176.7	175.2	175.2	175.2	175.2	172.0
70°	142.3	143.9	142.3	145.5	143.9	142.3	143.9	140.8
72.5°	111.0	112.6	111.0	112.6	111.0	111.0	111.0	111.0
75°	82.9	84.5	84.5	84.5	84.5	84.5	81.3	84.5
77.5°	59.4	59.4	59.4	61.0	59.4	59.4	59.4	59.4
80°	40.7	40.7	40.7	42.2	40.7	42.2	40.7	42.2
82.5°	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6
85°	14.1	15.6	15.6	14.1	14.1	14.1	14.1	14.1
87.5°	3.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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)