

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: P219511

Luminaire Tested: **LDSQ4B20D010 EU4B10209035 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219511
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 EU4B10209035 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1369.2 lumens
Efficiency: N/A
Efficacy: 65.8 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

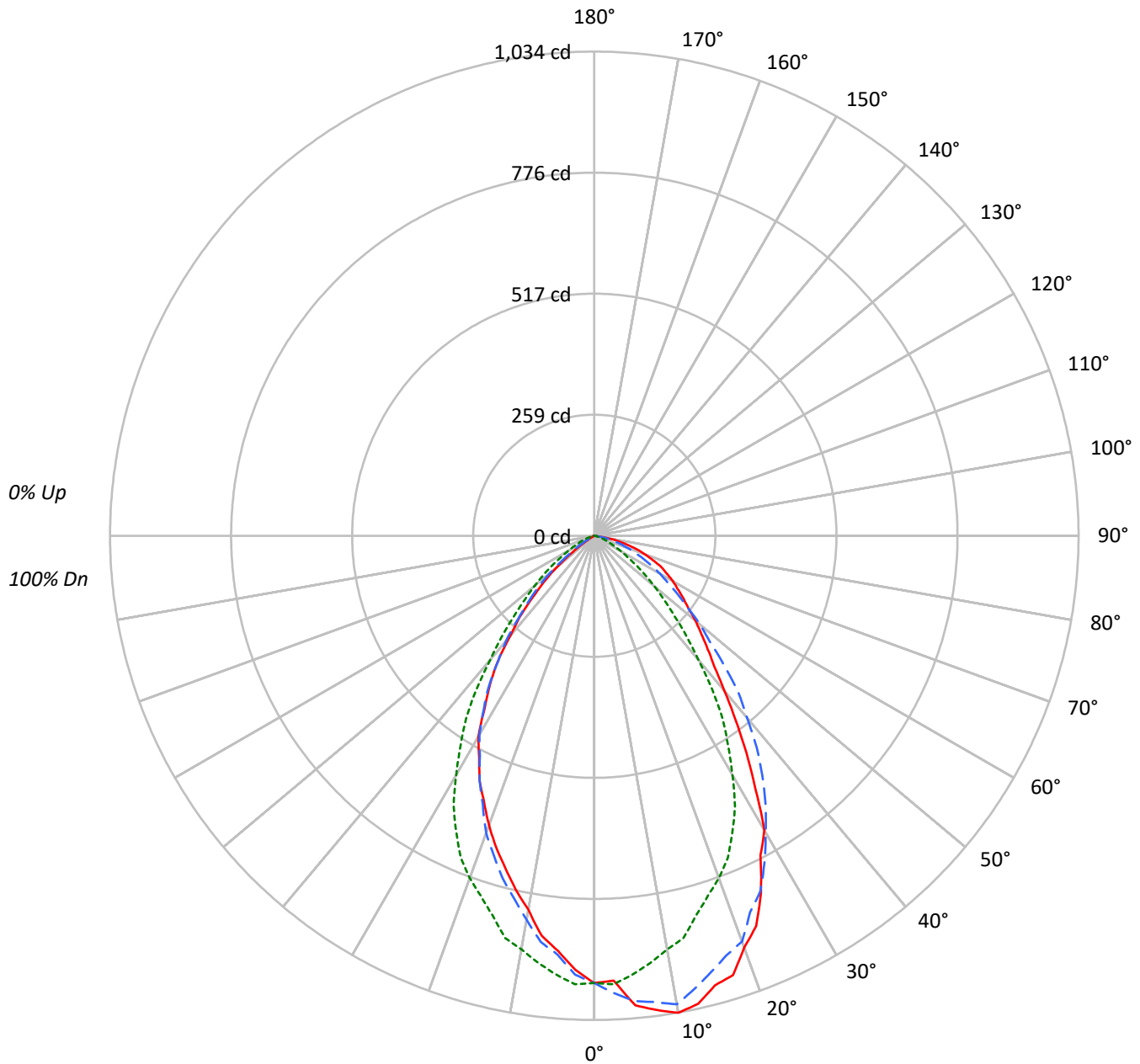
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P219511

CATALOG NUMBER: LDSQ4B20D010 EU4B10209035 4LBSQLWWLI

Luminous Intensity Polar Plot





TEST NUMBER: P219511

CATALOG NUMBER: LDSQ4B20D010 EU4B10209035 4LBSQLWWLI

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	30	10
RCR																					
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	108	105	102		109	106	103	101		102	100	98		98	96	95		95	93	92
2	104	98	93	89		102	96	92	88		93	89	86		90	87	84		87	84	82
3	97	89	83	78		95	88	82	77		85	80	76		82	78	75		80	77	74
4	91	81	74	69		89	80	74	69		78	72	68		76	71	67		74	70	66
5	85	75	67	62		83	74	67	62		72	66	61		70	65	60		68	64	60
6	80	69	61	56		78	68	61	56		66	60	55		65	59	55		63	58	54
7	75	63	56	51		73	63	56	51		61	55	50		60	54	50		59	54	50
8	70	59	52	47		69	58	51	46		57	51	46		56	50	46		55	50	46
9	66	55	48	43		65	54	47	43		53	47	43		52	46	42		51	46	42
10	62	51	44	40		61	51	44	40		50	44	39		49	43	39		48	43	39

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	92535	92535	92535
5°	97897	91440	86539
10°	101734	88218	79768
15°	99701	84196	73635
20°	96464	80175	67773
25°	89980	74556	61825
30°	81223	65976	55349
35°	66913	56482	45922
40°	54606	43591	35346
45°	46923	33114	25414
50°	42470	25199	16051
55°	39083	18190	5810
60°	37510	12419	891
65°	36241	8413	252
70°	32432	5835	312
75°	26575	2994	0
80°	16625	1283	0
85°	0	0	0



TEST NUMBER: P219511

CATALOG NUMBER: LDSQ4B20D010 EU4B10209035 4LBSQLWWLI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.5	6.5
10°-20°	241.1	17.6
20°-30°	322.0	23.5
30°-40°	305.6	22.3
40°-50°	211.3	15.4
50°-60°	116.7	8.5
60°-70°	58.0	4.2
70°-80°	22.8	1.7
80°-90°	2.2	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°	652.6	47.7
0°-40°	958.2	70.0
0°-60°	1286.2	93.9
0°-90°	1369.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1369.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	955	955	955	955	955	
5°	1007	998	940	898	890	96
15°	994	964	840	757	734	281
25°	842	838	698	578	578	384
35°	566	625	478	393	388	354
45°	342	393	242	198	186	267
55°	231	218	108	55	34	208
65°	158	114	37	1	1	153
75°	71	44	8	0	0	76
85°	0	1	0	0	0	7
90°	0	0	0	0	0	



TEST NUMBER: P219511

CATALOG NUMBER: LDSQ4B20D010 EU4B10209035 4LBSQLWWLI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2
2.5°	950.6	977.0	979.3	977.0	980.4	979.3	985.0	979.3	986.1	975.8	978.1
5°	1006.7	996.4	1018.2	1006.7	1006.7	1005.6	1002.2	1001.0	1005.6	990.7	997.6
7.5°	1021.6	1036.5	1056.0	1031.9	1033.1	1033.1	1026.2	1023.9	1023.9	996.4	1004.5
10°	1034.2	1025.1	1035.4	1026.2	1034.2	1033.1	1037.7	1022.8	1033.1	1017.0	1015.9
12.5°	1023.9	1020.5	1034.2	1019.3	1014.8	1015.9	1010.2	1006.7	1010.2	991.9	990.7
15°	994.1	997.6	1018.2	1002.2	999.9	997.6	990.7	979.3	988.4	963.2	964.4
17.5°	983.8	978.1	981.5	967.8	971.2	968.9	967.8	957.5	955.2	939.2	939.2
20°	935.7	948.3	948.3	939.2	939.2	938.0	923.1	932.3	922.0	917.4	922.0
22.5°	902.5	903.7	903.7	895.6	896.8	892.2	884.2	878.5	884.2	878.5	869.3
25°	841.8	844.1	857.8	843.0	840.7	845.3	838.4	834.9	833.8	820.1	838.4
27.5°	768.5	791.4	790.3	784.5	791.4	782.3	778.8	780.0	783.4	782.3	786.8
30°	726.1	729.6	733.0	728.4	729.6	726.1	726.1	727.3	736.4	733.0	731.9
32.5°	640.2	651.7	660.9	660.9	662.0	665.4	664.3	688.3	694.1	682.6	680.3
35°	565.8	573.8	581.8	583.0	597.9	599.0	600.2	607.0	623.1	626.5	625.3
37.5°	494.8	502.8	505.1	515.4	523.4	531.4	540.6	549.8	563.5	575.0	569.2
40°	431.8	435.2	441.0	445.5	461.6	461.6	466.1	484.5	499.4	508.5	507.4
42.5°	379.1	380.2	384.8	392.8	407.7	404.3	407.7	420.3	442.1	443.2	455.8
45°	342.5	341.3	344.7	345.9	355.1	359.6	361.9	371.1	389.4	391.7	392.8
47.5°	309.2	308.1	313.8	316.1	319.5	324.1	324.1	325.3	332.1	337.9	333.3
50°	281.8	281.8	281.8	284.0	289.8	288.6	289.8	294.3	297.8	295.5	294.3
52.5°	252.0	256.6	260.0	261.1	262.3	262.3	263.4	261.1	260.0	256.6	249.7
55°	231.4	235.9	235.9	235.9	235.9	240.5	234.8	235.9	235.9	226.8	217.6
57.5°	210.7	215.3	218.8	214.2	218.8	214.2	211.9	210.7	208.4	199.3	185.5
60°	193.6	195.9	194.7	193.6	195.9	192.4	190.1	185.5	183.3	170.7	161.5
62.5°	174.1	175.2	176.4	174.1	171.8	170.7	166.1	159.2	154.6	144.3	136.3
65°	158.1	154.6	153.5	152.3	150.0	146.6	143.2	135.1	131.7	122.5	114.5
67.5°	134.0	132.9	135.1	131.7	126.0	126.0	122.5	115.7	107.7	101.9	93.9
70°	114.5	113.4	111.1	107.7	106.5	101.9	101.9	93.9	91.6	81.3	74.4
72.5°	93.9	93.9	90.5	87.0	83.6	81.3	80.2	74.4	71.0	65.3	59.6
75°	71.0	71.0	69.9	66.4	64.1	61.8	60.7	56.1	52.7	47.0	43.5
77.5°	50.4	50.4	45.8	43.5	44.7	42.4	40.1	38.9	37.8	34.4	29.8
80°	29.8	28.6	25.2	26.3	25.2	25.2	24.1	22.9	20.6	18.3	16.0
82.5°	8.0	9.2	9.2	9.2	10.3	8.0	8.0	8.0	9.2	9.2	5.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1
87.5°	1.1	2.3	4.6	4.6	4.6	4.6	4.6	3.4	3.4	3.4	2.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P219511

CATALOG NUMBER: LDSQ4B20D010 EU4B10209035 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2
2.5°	966.7	965.5	966.7	958.6	977.0	963.2	960.9	958.6	966.7	958.6	947.2
5°	987.3	975.8	972.4	968.9	979.3	963.2	959.8	960.9	955.2	940.3	941.5
7.5°	994.1	983.8	973.5	951.8	960.9	957.5	948.3	941.5	932.3	919.7	917.4
10°	996.4	985.0	970.1	963.2	949.5	944.9	941.5	930.0	918.6	896.8	891.1
12.5°	989.6	975.8	957.5	951.8	941.5	926.6	918.6	907.1	896.8	879.6	867.0
15°	959.8	948.3	942.6	923.1	918.6	909.4	893.4	877.3	862.4	839.5	832.7
17.5°	925.4	920.8	915.1	900.2	899.1	889.9	875.0	861.3	841.8	806.3	794.9
20°	889.9	889.9	871.6	865.9	877.3	859.0	847.5	834.9	794.9	777.7	757.1
22.5°	863.6	851.0	840.7	831.5	832.7	821.2	805.2	780.0	765.1	744.5	720.4
25°	812.0	816.6	793.7	790.3	793.7	767.4	759.4	738.7	717.0	697.5	679.2
27.5°	780.0	767.4	752.5	739.9	739.9	729.6	706.7	702.1	668.9	650.5	627.6
30°	731.9	722.7	710.1	691.8	689.5	681.5	663.1	651.7	617.3	589.8	577.2
32.5°	671.2	667.7	657.4	636.8	629.9	620.8	597.9	578.4	562.4	531.4	516.5
35°	627.6	615.0	593.3	576.1	570.4	554.3	536.0	522.3	505.1	477.6	458.1
37.5°	562.4	549.8	529.1	508.5	508.5	492.5	467.3	453.5	429.5	413.5	397.4
40°	505.1	489.1	468.4	444.4	441.0	418.0	407.7	384.8	369.9	344.7	342.5
42.5°	441.0	426.1	407.7	389.4	375.7	364.2	337.9	320.7	304.7	292.1	288.6
45°	382.5	363.1	347.0	324.1	310.4	296.6	279.5	268.0	255.4	241.7	233.6
47.5°	332.1	316.1	293.2	272.6	258.8	252.0	232.5	219.9	209.6	200.4	194.7
50°	280.6	261.1	248.5	225.6	223.3	207.3	191.3	181.0	175.2	167.2	159.2
52.5°	241.7	223.3	206.2	189.0	179.8	174.1	159.2	148.9	140.9	135.1	130.6
55°	203.9	187.8	174.1	156.9	151.2	143.2	126.0	123.7	115.7	107.7	101.9
57.5°	175.2	160.3	144.3	132.9	122.5	116.8	103.1	93.9	89.3	82.5	76.7
60°	148.9	132.9	120.3	106.5	101.9	93.9	83.6	75.6	69.9	64.1	58.4
62.5°	124.8	111.1	97.4	85.9	79.0	74.4	66.4	59.6	53.8	49.2	44.7
65°	103.1	90.5	79.0	67.6	64.1	58.4	52.7	47.0	42.4	36.7	32.1
67.5°	84.8	73.3	61.8	53.8	50.4	48.1	41.2	35.5	32.1	28.6	24.1
70°	66.4	58.4	49.2	42.4	38.9	35.5	30.9	27.5	22.9	20.6	17.2
72.5°	51.5	44.7	36.7	30.9	28.6	26.3	21.8	18.3	16.0	13.7	11.5
75°	36.7	30.9	26.3	20.6	19.5	18.3	14.9	12.6	10.3	8.0	6.9
77.5°	25.2	20.6	16.0	13.7	12.6	10.3	9.2	6.9	5.7	4.6	3.4
80°	13.7	10.3	8.0	6.9	5.7	4.6	4.6	3.4	2.3	2.3	1.1
82.5°	4.6	3.4	2.3	1.1	1.1	1.1	1.1	1.1	1.1	0.0	1.1
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°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	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



TEST NUMBER: P219511

CATALOG NUMBER: LDSQ4B20D010 EU4B10209035 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2
2.5°	954.1	941.5	944.9	944.9	942.6	942.6	940.3	936.9	938.0	931.2	916.3
5°	943.7	927.7	925.4	927.7	918.6	916.3	911.7	918.6	897.9	906.0	896.8
7.5°	914.0	899.1	895.6	903.7	892.2	885.3	884.2	893.4	875.0	865.9	855.6
10°	880.8	875.0	864.7	859.0	855.6	856.7	847.5	836.1	832.7	830.4	821.2
12.5°	851.0	838.4	829.2	822.3	820.1	820.1	805.2	802.9	792.6	790.3	776.5
15°	815.5	800.6	794.9	785.7	777.7	782.3	765.1	760.5	757.1	742.2	744.5
17.5°	784.5	768.5	754.8	749.0	742.2	735.3	719.3	722.7	714.7	714.7	694.1
20°	744.5	727.3	717.0	705.5	705.5	696.4	684.9	686.1	675.7	665.4	647.1
22.5°	702.1	683.8	671.2	666.6	655.1	652.8	639.1	635.7	621.9	623.1	607.0
25°	657.4	639.1	621.9	623.1	612.7	608.2	600.2	584.1	578.4	571.5	566.9
27.5°	604.7	592.1	577.2	576.1	556.6	557.8	547.5	542.9	529.1	532.6	522.3
30°	556.6	538.3	524.6	521.1	513.1	510.8	494.8	487.9	490.2	481.0	475.3
32.5°	507.4	479.9	474.2	467.3	462.7	457.0	445.5	450.1	439.8	442.1	432.9
35°	442.1	430.6	415.8	415.8	411.2	406.6	398.6	403.2	392.8	388.3	379.1
37.5°	387.1	376.8	361.9	366.5	358.5	351.6	344.7	345.9	336.7	335.6	326.4
40°	327.6	321.8	311.5	311.5	305.8	305.8	302.4	298.9	293.2	286.3	276.0
42.5°	271.4	266.9	262.3	263.4	255.4	262.3	253.1	258.8	240.5	239.4	232.5
45°	230.2	219.9	221.0	216.5	211.9	214.2	206.2	208.4	198.1	195.9	189.0
47.5°	186.7	183.3	176.4	174.1	174.1	170.7	167.2	166.1	161.5	155.8	146.6
50°	153.5	140.9	138.6	135.1	132.9	132.9	128.3	121.4	122.5	116.8	107.7
52.5°	120.3	110.0	105.4	104.2	99.6	97.4	91.6	87.0	83.6	81.3	75.6
55°	92.8	83.6	77.9	77.9	71.0	71.0	63.0	59.6	55.0	50.4	47.0
57.5°	69.9	65.3	59.6	55.0	52.7	47.0	42.4	36.7	33.2	26.3	21.8
60°	52.7	48.1	42.4	38.9	36.7	30.9	25.2	20.6	12.6	10.3	9.2
62.5°	38.9	34.4	28.6	26.3	24.1	19.5	13.7	6.9	3.4	3.4	3.4
65°	28.6	22.9	18.3	16.0	13.7	10.3	4.6	2.3	1.1	1.1	1.1
67.5°	19.5	14.9	10.3	9.2	6.9	3.4	1.1	1.1	1.1	1.1	1.1
70°	12.6	9.2	4.6	3.4	2.3	1.1	1.1	1.1	1.1	1.1	1.1
72.5°	8.0	4.6	2.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	4.6	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.1	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	1.1	1.1	1.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P219511

CATALOG NUMBER: LDSQ4B20D010 EU4B10209035 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	955.2	955.2	955.2	955.2	955.2	955.2	955.2	955.2
2.5°	932.3	924.3	928.9	918.6	923.1	931.2	925.4	927.7
5°	900.2	895.6	889.9	875.0	886.5	895.6	891.1	889.9
7.5°	865.9	849.8	857.8	853.3	851.0	860.1	849.8	861.3
10°	830.4	818.9	817.8	809.7	809.7	816.6	817.8	810.9
12.5°	777.7	771.9	771.9	770.8	769.7	776.5	777.7	774.2
15°	739.9	737.6	731.9	730.7	723.8	734.2	735.3	734.2
17.5°	694.1	695.2	689.5	689.5	694.1	697.5	688.3	697.5
20°	663.1	657.4	655.1	644.8	650.5	656.3	656.3	657.4
22.5°	618.5	609.3	612.7	607.0	603.6	611.6	611.6	615.0
25°	568.1	568.1	570.4	566.9	569.2	573.8	570.4	578.4
27.5°	520.0	524.6	524.6	520.0	522.3	536.0	541.7	532.6
30°	475.3	476.5	479.9	477.6	484.5	489.1	487.9	494.8
32.5°	424.9	430.6	432.9	429.5	431.8	442.1	436.4	435.2
35°	386.0	375.7	374.5	375.7	380.2	382.5	380.2	388.3
37.5°	329.9	326.4	321.8	323.0	326.4	331.0	333.3	339.0
40°	276.0	271.4	271.4	270.3	266.9	279.5	279.5	279.5
42.5°	229.1	227.9	222.2	222.2	226.8	230.2	227.9	235.9
45°	187.8	183.3	179.8	179.8	183.3	183.3	186.7	185.5
47.5°	147.7	143.2	144.3	140.9	144.3	148.9	143.2	144.3
50°	111.1	111.1	108.8	111.1	110.0	111.1	108.8	106.5
52.5°	75.6	85.9	87.0	82.5	72.2	63.0	57.3	61.8
55°	43.5	38.9	38.9	37.8	35.5	34.4	30.9	34.4
57.5°	21.8	19.5	19.5	19.5	18.3	17.2	14.9	14.9
60°	9.2	8.0	8.0	6.9	5.7	4.6	3.4	4.6
62.5°	3.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3
65°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
67.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)