

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: P182705

Luminaire Tested: **LDSQA4A18840D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182705
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26800)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A18840D010TE LAR25NF 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2249.4 lumens
Efficiency: N/A
Efficacy: 77.2 lumens/watt
Spacing Criteria (0/90/45): 2.38 / 0.59 / 1.18
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

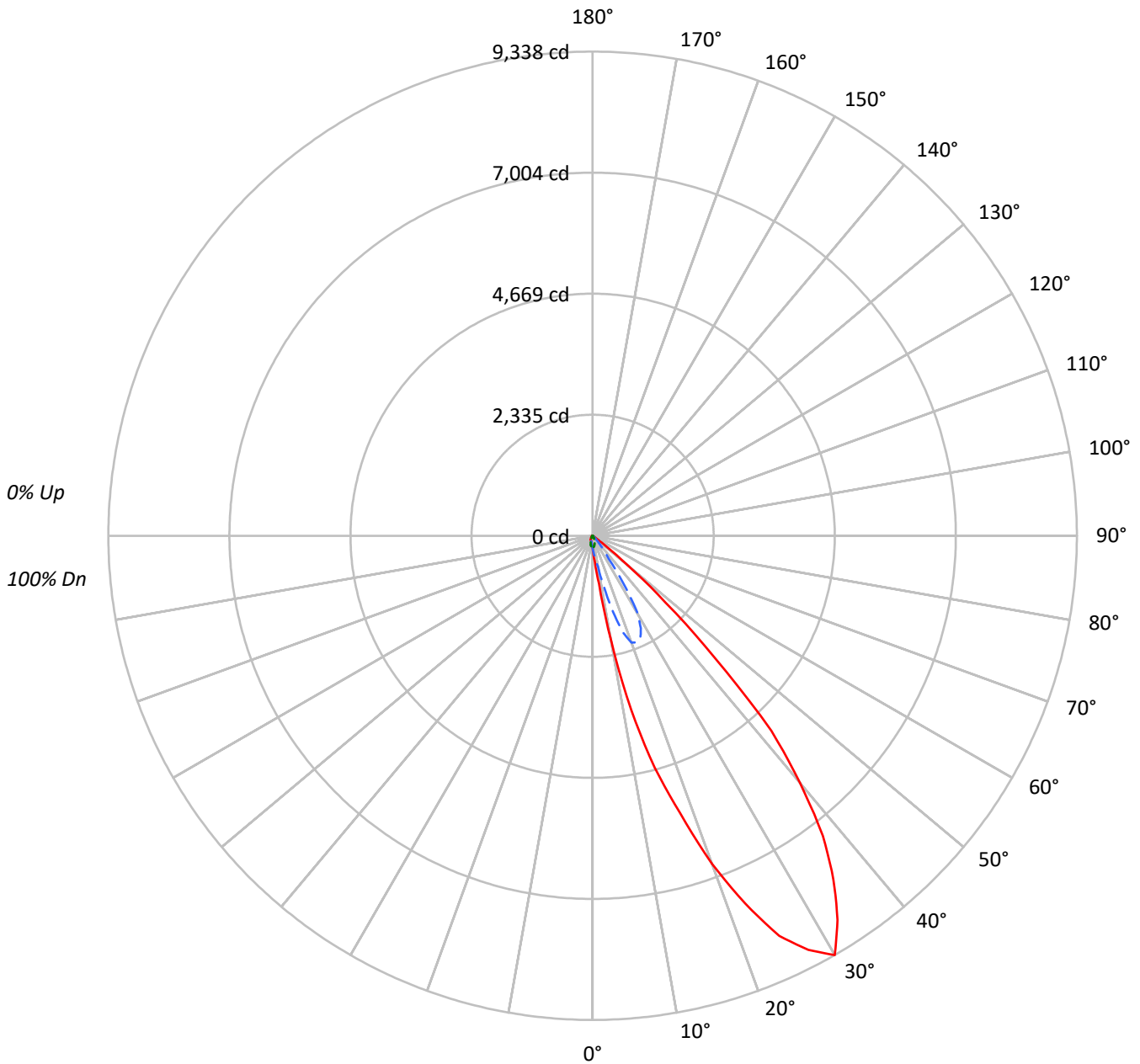
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91				91
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83				83
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75				75
4	93	84	77	72	91	82	76	72	80	75	71	78	73	70	76	72	69	67				67
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61				61
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55				55
7	76	64	57	52	74	64	57	52	62	56	52	61	56	51	60	55	51	49				49
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45				45
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41				41
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	38	37				37

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	22756	22756	22756
5°	50363	21530	15131
10°	201619	18690	12631
15°	464737	14873	11102
20°	693752	10546	9907
25°	909935	7033	8818
30°	1044524	4441	7707
35°	957718	2838	6670
40°	785392	1846	5678
45°	455328	1288	4576
50°	129039	949	3783
55°	11823	878	3175
60°	1821	1008	2635
65°	481	963	1926
70°	595	1190	1473
75°	786	1572	1572
80°	0	2343	1172
85°	0	4668	1112



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.4	1.5
10°-20°	299.1	13.3
20°-30°	728.8	32.4
30°-40°	789.9	35.1
40°-50°	357.9	15.9
50°-60°	27.7	1.2
60°-70°	5.7	0.3
70°-80°	4.2	0.2
80°-90°	2.7	0.1
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°	1061.3	47.2
0°-40°	1851.3	82.3
0°-60°	2236.9	99.4
0°-90°	2249.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2249.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	235	235	235	235	235	
5°	518	382	221	167	156	93
15°	4634	1516	148	108	111	1347
25°	8513	2177	66	65	82	3880
35°	8098	553	24	38	56	4981
45°	3324	70	9	21	33	2624
55°	70	9	5	12	19	160
65°	2	3	4	8	8	3
75°	2	3	4	6	4	1
85°	0	3	4	3	1	0
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°	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9
2.5°	351.9	345.6	348.7	340.4	335.2	331.0	333.1	331.0	317.4	314.3	303.8
5°	517.9	508.5	508.5	490.7	471.9	460.5	460.5	446.9	417.7	404.1	382.2
7.5°	928.2	909.4	893.8	838.4	766.4	725.7	715.2	657.8	583.7	536.7	481.3
10°	2049.6	1971.3	1916.0	1771.9	1578.7	1458.6	1407.5	1209.1	973.1	795.6	634.8
12.5°	3446.7	3340.2	3243.1	3007.1	2729.3	2540.4	2439.1	2146.7	1688.4	1360.5	1018.0
15°	4633.8	4519.0	4404.1	4117.0	3823.6	3659.7	3473.8	3086.4	2480.8	2015.2	1516.1
17.5°	5608.0	5543.3	5425.3	5004.5	4634.9	4379.1	4185.9	3679.5	3056.2	2524.7	1959.8
20°	6729.4	6569.6	6358.7	5848.1	5342.8	5022.2	4750.8	4133.7	3413.2	2802.4	2194.8
22.5°	7673.3	7559.5	7256.7	6583.2	5839.8	5566.2	5234.2	4491.8	3643.0	2920.4	2221.9
25°	8512.8	8334.2	7954.2	7153.3	6392.1	5926.5	5519.2	4686.0	3727.5	2928.8	2177.0
27.5°	9004.5	8771.7	8324.8	7451.9	6583.2	6068.5	5617.4	4719.4	3674.3	2818.1	2013.1
30°	9337.6	8874.0	8380.2	7455.1	6522.7	5996.4	5528.6	4551.3	3452.9	2565.4	1737.4
32.5°	8788.4	8520.1	8048.1	7158.5	6192.7	5679.0	5214.4	4186.9	3107.3	2190.6	1209.1
35°	8098.2	7881.1	7470.7	6587.4	5697.8	5213.3	4720.5	3719.2	2657.3	1505.6	553.4
37.5°	7296.4	7126.2	6684.5	5877.4	5094.3	4620.3	4126.4	3170.0	1871.1	746.6	336.2
40°	6210.5	6066.4	5704.1	5055.7	4334.2	3883.1	3427.9	2371.2	1015.9	416.6	219.3
42.5°	5104.7	4983.6	4653.7	4093.0	3459.2	3087.5	2686.5	1445.1	505.4	262.1	122.2
45°	3323.5	3172.1	2994.6	2737.7	2424.5	2195.8	1722.8	697.5	299.7	146.2	70.0
47.5°	1905.5	1805.3	1514.0	1194.5	970.0	885.4	644.2	324.7	165.0	84.6	42.8
50°	856.2	791.4	664.1	540.9	391.5	305.9	260.0	162.9	81.4	45.9	29.2
52.5°	210.9	215.1	203.6	178.5	158.7	134.7	116.9	76.2	42.8	28.2	18.8
55°	70.0	71.0	64.7	61.6	56.4	52.2	48.0	34.5	26.1	25.1	9.4
57.5°	25.1	25.1	26.1	24.0	23.0	21.9	20.9	17.8	15.7	9.4	5.2
60°	9.4	9.4	9.4	10.4	10.4	10.4	11.5	10.4	7.3	5.2	4.2
62.5°	4.2	4.2	4.2	4.2	5.2	5.2	6.3	5.2	4.2	4.2	3.1
65°	2.1	2.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1
70°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1
80°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1
82.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	3.1
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9
2.5°	293.4	287.1	274.6	265.2	257.9	256.9	250.6	240.1	236.0	228.7	222.4
5°	361.3	345.6	325.8	307.0	293.4	286.1	264.2	244.3	232.8	221.4	210.9
7.5°	434.4	398.9	364.4	334.1	315.3	303.8	277.7	245.4	224.5	207.8	194.2
10°	526.2	453.2	393.6	346.6	321.6	305.9	274.6	236.0	209.9	190.0	176.5
12.5°	736.1	536.7	420.8	352.9	321.6	299.7	262.1	223.4	194.2	170.2	155.6
15°	1095.3	749.7	499.1	356.0	311.1	286.1	243.3	202.6	173.3	148.3	134.7
17.5°	1433.6	986.7	623.3	378.0	304.9	266.3	218.2	178.5	148.3	124.3	112.8
20°	1609.0	1104.7	692.3	394.7	294.4	241.2	189.0	152.4	123.2	102.3	92.9
22.5°	1613.2	1094.2	658.8	356.0	255.8	206.7	161.8	125.3	100.2	82.5	75.2
25°	1514.0	967.9	541.9	277.7	206.7	173.3	134.7	102.3	78.3	65.8	60.6
27.5°	1327.1	783.1	399.9	200.5	161.8	137.8	105.5	78.3	59.5	51.2	48.0
30°	1026.4	484.5	221.4	148.3	122.2	103.4	76.2	52.2	44.9	39.7	37.6
32.5°	509.5	237.0	156.6	105.5	83.5	65.8	48.0	38.6	34.5	31.3	30.3
35°	276.7	170.2	98.1	63.7	50.1	41.8	32.4	27.1	25.1	24.0	24.0
37.5°	193.2	101.3	59.5	38.6	31.3	28.2	23.0	19.8	18.8	18.8	18.8
40°	106.5	60.6	36.5	25.1	20.9	18.8	15.7	14.6	14.6	14.6	15.7
42.5°	61.6	37.6	25.1	17.8	14.6	13.6	11.5	10.4	11.5	11.5	12.5
45°	39.7	28.2	16.7	12.5	10.4	9.4	8.4	8.4	9.4	9.4	10.4
47.5°	28.2	19.8	11.5	8.4	6.3	6.3	6.3	6.3	7.3	8.4	9.4
50°	16.7	10.4	6.3	5.2	4.2	4.2	4.2	5.2	6.3	6.3	7.3
52.5°	9.4	6.3	4.2	4.2	3.1	3.1	4.2	4.2	5.2	6.3	7.3
55°	5.2	4.2	3.1	3.1	3.1	3.1	3.1	4.2	4.2	5.2	6.3
57.5°	4.2	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	5.2	5.2
60°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	5.2	5.2
62.5°	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	5.2
65°	3.1	3.1	3.1	4.2	3.1	4.2	4.2	4.2	4.2	4.2	5.2
67.5°	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	5.2
70°	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	5.2
72.5°	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	5.2
75°	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
77.5°	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
80°	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
82.5°	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
85°	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
87.5°	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2
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°	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9
2.5°	220.3	213.0	207.8	205.7	201.5	202.6	199.4	197.3	191.1	191.1	186.9
5°	203.6	194.2	187.9	184.8	180.6	179.6	176.5	173.3	167.1	166.0	162.9
7.5°	185.9	176.5	169.1	166.0	161.8	160.8	156.6	154.5	149.3	148.3	145.1
10°	167.1	156.6	150.4	147.2	143.0	143.0	139.9	137.8	133.6	133.6	131.6
12.5°	147.2	137.8	133.6	129.5	127.4	127.4	125.3	123.2	120.1	121.1	120.1
15°	126.3	119.0	114.9	112.8	111.7	111.7	110.7	109.6	107.5	109.6	107.5
17.5°	106.5	101.3	98.1	97.1	96.1	96.1	96.1	97.1	96.1	98.1	98.1
20°	87.7	83.5	81.4	81.4	80.4	82.5	82.5	84.6	84.6	87.7	88.8
22.5°	72.0	68.9	67.9	67.9	67.9	70.0	71.0	73.1	74.1	77.3	79.4
25°	57.4	56.4	56.4	56.4	57.4	59.5	61.6	63.7	64.7	68.9	70.0
27.5°	47.0	45.9	47.0	47.0	48.0	51.2	53.3	55.3	57.4	60.6	62.6
30°	37.6	37.6	38.6	39.7	40.7	42.8	45.9	48.0	50.1	53.3	55.3
32.5°	30.3	31.3	32.4	33.4	33.4	36.5	38.6	41.8	42.8	45.9	48.0
35°	25.1	26.1	27.1	28.2	28.2	31.3	33.4	35.5	37.6	39.7	41.8
37.5°	19.8	20.9	23.0	24.0	24.0	27.1	28.2	30.3	32.4	34.5	36.5
40°	16.7	17.8	19.8	19.8	20.9	23.0	24.0	26.1	28.2	30.3	32.4
42.5°	13.6	14.6	16.7	17.8	17.8	19.8	20.9	23.0	24.0	26.1	27.1
45°	12.5	12.5	14.6	14.6	15.7	16.7	18.8	19.8	20.9	23.0	24.0
47.5°	10.4	11.5	12.5	13.6	13.6	14.6	15.7	16.7	17.8	19.8	20.9
50°	8.4	9.4	11.5	11.5	11.5	13.6	14.6	15.7	15.7	16.7	17.8
52.5°	8.4	8.4	9.4	10.4	10.4	11.5	12.5	13.6	13.6	14.6	15.7
55°	7.3	7.3	8.4	9.4	9.4	10.4	11.5	11.5	12.5	12.5	13.6
57.5°	6.3	7.3	8.4	8.4	8.4	9.4	10.4	10.4	11.5	11.5	12.5
60°	6.3	7.3	7.3	8.4	8.4	9.4	9.4	9.4	10.4	10.4	10.4
62.5°	6.3	6.3	7.3	7.3	7.3	8.4	8.4	9.4	9.4	9.4	9.4
65°	6.3	6.3	7.3	7.3	7.3	8.4	8.4	8.4	8.4	8.4	8.4
67.5°	5.2	6.3	6.3	6.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
70°	5.2	5.2	6.3	6.3	6.3	7.3	7.3	7.3	7.3	7.3	7.3
72.5°	5.2	5.2	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
75°	5.2	5.2	5.2	5.2	5.2	6.3	6.3	6.3	6.3	5.2	5.2
77.5°	4.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	4.2
80°	4.2	4.2	5.2	4.2	5.2	5.2	5.2	5.2	4.2	4.2	4.2
82.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.1	3.1
85°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.1	3.1	3.1	2.1
87.5°	4.2	4.2	4.2	4.2	4.2	4.2	3.1	3.1	3.1	2.1	2.1
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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CATALOG NUMBER: LDSQA4A18840D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9
2.5°	184.8	186.9	184.8	186.9	181.7	183.8	185.9	180.6
5°	160.8	158.7	159.8	161.8	157.7	158.7	159.8	155.6
7.5°	144.1	145.1	143.0	145.1	142.0	143.0	144.1	141.0
10°	130.5	131.6	130.5	131.6	128.4	130.5	131.6	128.4
12.5°	118.0	120.1	119.0	121.1	118.0	120.1	122.2	118.0
15°	108.6	110.7	109.6	111.7	109.6	111.7	113.8	110.7
17.5°	99.2	101.3	101.3	103.4	102.3	104.4	106.5	103.4
20°	89.8	92.9	92.9	95.0	95.0	96.1	99.2	96.1
22.5°	81.4	84.6	84.6	86.7	86.7	88.8	90.8	88.8
25°	72.0	76.2	77.3	79.4	79.4	81.4	84.6	82.5
27.5°	65.8	68.9	70.0	72.0	73.1	75.2	77.3	75.2
30°	57.4	61.6	62.6	64.7	65.8	68.9	70.0	68.9
32.5°	51.2	54.3	55.3	57.4	59.5	61.6	63.7	62.6
35°	44.9	48.0	49.1	51.2	52.2	55.3	57.4	56.4
37.5°	39.7	42.8	43.9	44.9	45.9	49.1	51.2	50.1
40°	34.5	36.5	37.6	39.7	40.7	42.8	44.9	44.9
42.5°	30.3	32.4	33.4	34.5	35.5	37.6	39.7	38.6
45°	26.1	28.2	29.2	30.3	31.3	32.4	34.5	33.4
47.5°	21.9	24.0	25.1	26.1	27.1	28.2	30.3	29.2
50°	18.8	20.9	20.9	21.9	23.0	24.0	26.1	25.1
52.5°	16.7	17.8	18.8	18.8	19.8	20.9	23.0	21.9
55°	14.6	15.7	15.7	16.7	16.7	17.8	18.8	18.8
57.5°	12.5	13.6	13.6	14.6	14.6	15.7	16.7	16.7
60°	11.5	11.5	12.5	12.5	12.5	13.6	13.6	13.6
62.5°	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
65°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
67.5°	7.3	7.3	7.3	7.3	7.3	6.3	6.3	6.3
70°	6.3	6.3	6.3	6.3	6.3	5.2	5.2	5.2
72.5°	6.3	6.3	5.2	5.2	5.2	5.2	5.2	4.2
75°	5.2	5.2	5.2	5.2	4.2	4.2	4.2	4.2
77.5°	4.2	4.2	4.2	4.2	3.1	3.1	3.1	3.1
80°	4.2	3.1	3.1	3.1	3.1	3.1	3.1	2.1
82.5°	3.1	3.1	3.1	2.1	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0
87.5°	2.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)