

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: P182824

Luminaire Tested: **LDSQA4A28835D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182824
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26803)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A28835D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2728.4 lumens
Efficiency: N/A
Efficacy: 61.3 lumens/watt
Spacing Criteria (0/90/45): 2.36 / 0.61 / 1.19
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

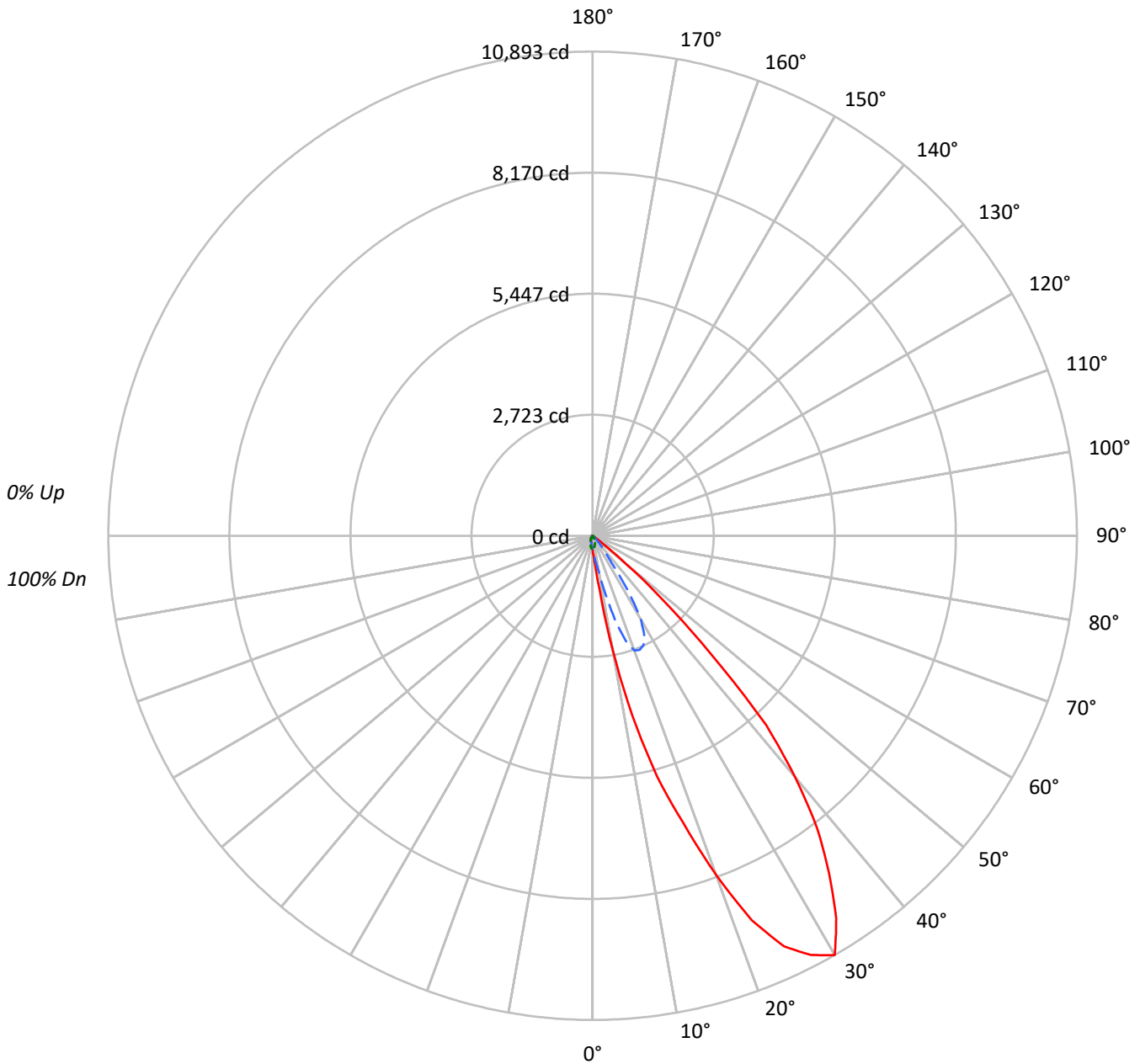
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	29460	29460	29460
5°	65942	27705	19848
10°	258595	24258	15631
15°	561369	19647	13600
20°	837463	14546	12289
25°	1089265	10251	10689
30°	1218548	6891	9352
35°	1096618	4045	7935
40°	894946	2770	6930
45°	513855	1877	5631
50°	150304	1447	4747
55°	17346	1149	3935
60°	3720	1318	3178
65°	1261	1261	2201
70°	1161	1558	1558
75°	1011	2059	1535
80°	0	3068	1506
85°	0	6113	1556



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.6	1.6
10°-20°	373.5	13.7
20°-30°	891.0	32.7
30°-40°	940.3	34.5
40°-50°	426.4	15.6
50°-60°	37.4	1.4
60°-70°	7.8	0.3
70°-80°	5.1	0.2
80°-90°	3.2	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°	1308.1	47.9
0°-40°	2248.4	82.4
0°-60°	2712.2	99.4
0°-90°	2728.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2728.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	304	304	304	304	304	
5°	678	497	285	219	204	122
15°	5597	1968	196	134	136	1629
25°	10190	2710	96	82	100	4629
35°	9273	748	34	47	67	5726
45°	3751	106	14	26	41	2974
55°	103	16	7	15	23	205
65°	6	6	6	11	10	7
75°	3	3	6	7	4	2
85°	0	3	6	4	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°	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1
2.5°	452.1	454.8	442.5	443.8	431.5	437.0	432.9	421.9	413.7	400.0	394.5
5°	678.1	682.2	654.8	646.6	617.8	617.8	605.5	576.7	550.7	519.2	497.3
7.5°	1239.7	1256.2	1174.0	1112.3	1021.9	1000.0	957.5	858.9	778.1	695.9	634.3
10°	2628.8	2598.7	2428.8	2289.1	2056.2	1969.9	1854.8	1571.2	1311.0	1052.1	849.3
12.5°	4145.2	4242.5	3915.1	3801.4	3432.9	3354.8	3109.6	2646.6	2206.9	1749.3	1343.8
15°	5597.3	5626.1	5339.8	5154.8	4705.5	4604.2	4302.8	3758.9	3167.2	2528.8	1968.5
17.5°	6763.1	6878.1	6457.6	6259.0	5675.4	5512.4	5157.6	4495.9	3837.0	3139.8	2475.4
20°	8123.4	8153.5	7654.9	7272.7	6509.7	6261.7	5837.0	5016.5	4231.5	3435.6	2749.3
22.5°	9360.4	9353.5	8712.4	8172.7	7206.9	6911.0	6386.4	5413.8	4501.4	3567.2	2775.4
25°	10190.5	10212.4	9526.1	8887.8	7702.8	7302.8	6711.0	5620.6	4593.2	3563.0	2709.6
27.5°	10633.0	10611.1	9875.4	9193.2	7885.0	7437.1	6794.6	5627.5	4509.6	3423.3	2512.4
30°	10893.3	10600.1	9815.2	9106.9	7761.7	7301.4	6648.0	5411.0	4231.5	3111.0	2160.3
32.5°	10197.4	10083.7	9400.1	8648.0	7337.1	6880.9	6235.7	4950.7	3790.4	2632.9	1548.0
35°	9272.7	9276.8	8609.7	7906.9	6671.3	6274.0	5608.3	4390.5	3252.1	1830.2	748.0
37.5°	8302.8	8316.5	7682.3	7028.8	5928.8	5511.0	4887.7	3752.1	2339.7	931.5	450.7
40°	7076.8	7105.5	6559.0	6034.3	5019.2	4616.5	4060.3	2839.8	1308.2	520.6	305.5
42.5°	5782.2	5817.9	5332.9	4867.2	4004.1	3672.6	3179.5	1758.9	649.3	337.0	179.5
45°	3750.7	3853.5	3493.2	3297.3	2797.3	2600.0	2075.4	897.3	391.8	197.3	105.5
47.5°	2146.6	2148.0	1843.9	1476.7	1211.0	1053.4	823.3	408.2	228.8	111.0	64.4
50°	997.3	1021.9	809.6	674.0	482.2	408.2	335.6	220.6	120.5	64.4	39.7
52.5°	290.4	306.9	278.1	252.1	213.7	190.4	163.0	108.2	63.0	38.4	24.7
55°	102.7	109.6	102.7	95.9	86.3	78.1	69.9	52.1	35.6	23.3	16.4
57.5°	42.5	43.8	42.5	41.1	38.4	38.4	34.2	28.8	21.9	15.1	11.0
60°	19.2	20.5	19.2	20.5	19.2	19.2	19.2	20.5	13.7	9.6	8.2
62.5°	8.2	9.6	9.6	9.6	9.6	11.0	11.0	9.6	8.2	6.8	5.5
65°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
67.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
70°	4.1	4.1	4.1	4.1	4.1	4.1	2.7	2.7	4.1	4.1	4.1
72.5°	4.1	4.1	4.1	4.1	2.7	2.7	2.7	2.7	2.7	4.1	4.1
75°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.7	2.7	2.7
80°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7
82.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.7	2.7	2.7
85°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7
87.5°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7
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°	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1
2.5°	387.7	375.3	356.2	343.8	338.4	330.1	324.7	311.0	305.5	294.5	290.4
5°	476.7	452.1	423.3	400.0	384.9	368.5	343.8	316.4	302.7	284.9	275.3
7.5°	578.1	524.7	474.0	432.9	413.7	391.8	360.3	317.8	291.8	268.5	254.8
10°	706.9	597.3	517.8	452.1	423.3	394.5	356.2	306.9	274.0	246.6	231.5
12.5°	1008.2	720.6	557.5	463.0	426.0	390.4	342.5	291.8	253.4	221.9	205.5
15°	1450.7	1006.9	664.4	472.6	416.4	372.6	317.8	267.1	227.4	195.9	179.5
17.5°	1842.5	1283.6	812.3	508.2	413.7	352.1	287.7	235.6	197.3	167.1	153.4
20°	2056.2	1428.8	911.0	530.1	401.4	320.6	253.4	204.1	167.1	141.1	128.8
22.5°	2060.3	1420.6	875.4	482.2	353.4	278.1	219.2	172.6	139.7	116.4	106.9
25°	1937.0	1267.1	730.1	379.5	289.0	235.6	183.6	143.8	113.7	95.9	87.7
27.5°	1706.9	1030.1	537.0	274.0	226.0	190.4	147.9	115.1	89.0	78.1	71.2
30°	1342.5	671.2	313.7	204.1	175.3	146.6	112.3	80.8	69.9	61.6	56.2
32.5°	720.6	326.0	219.2	150.7	124.7	102.7	74.0	58.9	50.7	45.2	43.8
35°	376.7	238.4	146.6	95.9	79.5	67.1	50.7	41.1	37.0	34.2	34.2
37.5°	269.9	149.3	93.2	61.6	52.1	42.5	35.6	30.1	27.4	27.4	27.4
40°	160.3	91.8	56.2	39.7	34.2	30.1	26.0	21.9	21.9	21.9	21.9
42.5°	97.3	57.5	39.7	27.4	24.7	21.9	19.2	17.8	16.4	16.4	17.8
45°	60.3	39.7	26.0	20.5	19.2	16.4	15.1	13.7	13.7	13.7	15.1
47.5°	38.4	28.8	19.2	13.7	12.3	11.0	9.6	9.6	11.0	11.0	12.3
50°	28.8	17.8	12.3	9.6	8.2	8.2	6.8	8.2	8.2	9.6	11.0
52.5°	16.4	11.0	8.2	6.8	6.8	5.5	5.5	6.8	6.8	8.2	9.6
55°	11.0	8.2	6.8	5.5	5.5	5.5	5.5	5.5	6.8	6.8	8.2
57.5°	8.2	6.8	5.5	5.5	5.5	4.1	5.5	5.5	5.5	6.8	8.2
60°	6.8	5.5	5.5	5.5	5.5	4.1	4.1	5.5	5.5	6.8	6.8
62.5°	5.5	5.5	5.5	5.5	5.5	4.1	5.5	5.5	5.5	5.5	6.8
65°	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.8
67.5°	4.1	4.1	5.5	5.5	5.5	4.1	5.5	5.5	5.5	5.5	6.8
70°	4.1	4.1	4.1	5.5	5.5	4.1	5.5	5.5	5.5	5.5	5.5
72.5°	4.1	4.1	4.1	5.5	5.5	4.1	5.5	5.5	5.5	5.5	5.5
75°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5
77.5°	4.1	4.1	4.1	4.1	5.5	4.1	5.5	5.5	5.5	5.5	5.5
80°	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5	5.5
82.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5
85°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5
87.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5
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°	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1
2.5°	279.5	275.3	267.1	265.8	264.4	258.9	254.8	250.7	250.7	246.6	243.8
5°	258.9	252.1	242.5	238.4	237.0	230.1	224.7	220.6	219.2	215.1	211.0
7.5°	237.0	228.8	217.8	213.7	212.3	205.5	200.0	195.9	193.2	189.0	186.3
10°	213.7	204.1	194.5	190.4	189.0	182.2	178.1	174.0	171.2	168.5	165.8
12.5°	189.0	180.8	171.2	167.1	165.8	160.3	156.2	153.4	152.1	149.3	147.9
15°	164.4	156.2	147.9	145.2	143.8	139.7	137.0	135.6	134.2	134.2	132.9
17.5°	139.7	132.9	126.0	124.7	123.3	120.5	119.2	117.8	119.2	119.2	120.5
20°	116.4	111.0	105.5	105.5	104.1	102.7	102.7	102.7	105.5	106.9	109.6
22.5°	95.9	91.8	87.7	87.7	87.7	87.7	87.7	90.4	93.2	95.9	97.3
25°	79.5	75.3	74.0	74.0	74.0	75.3	76.7	79.5	82.2	84.9	87.7
27.5°	64.4	61.6	61.6	61.6	63.0	64.4	65.8	68.5	72.6	75.3	78.1
30°	52.1	50.7	50.7	52.1	53.4	54.8	57.5	60.3	63.0	65.8	68.5
32.5°	41.1	42.5	42.5	43.8	45.2	46.6	49.3	52.1	54.8	57.5	58.9
35°	34.2	34.2	35.6	37.0	38.4	39.7	42.5	45.2	46.6	49.3	52.1
37.5°	27.4	28.8	30.1	31.5	32.9	34.2	35.6	38.4	39.7	42.5	45.2
40°	23.3	24.7	26.0	27.4	27.4	30.1	30.1	32.9	34.2	37.0	39.7
42.5°	19.2	20.5	21.9	23.3	23.3	24.7	26.0	27.4	30.1	31.5	34.2
45°	15.1	16.4	17.8	19.2	20.5	21.9	21.9	24.7	26.0	27.4	30.1
47.5°	13.7	15.1	16.4	16.4	17.8	19.2	19.2	21.9	23.3	24.7	26.0
50°	11.0	12.3	13.7	15.1	15.1	16.4	17.8	19.2	20.5	21.9	21.9
52.5°	9.6	11.0	12.3	12.3	13.7	15.1	15.1	16.4	17.8	17.8	19.2
55°	9.6	11.0	11.0	12.3	12.3	13.7	13.7	15.1	15.1	16.4	16.4
57.5°	8.2	9.6	9.6	11.0	11.0	12.3	12.3	13.7	13.7	13.7	15.1
60°	8.2	8.2	9.6	9.6	11.0	11.0	11.0	12.3	12.3	12.3	13.7
62.5°	6.8	8.2	8.2	9.6	9.6	9.6	11.0	11.0	11.0	12.3	12.3
65°	6.8	8.2	8.2	9.6	9.6	9.6	9.6	9.6	11.0	11.0	11.0
67.5°	6.8	6.8	8.2	8.2	8.2	8.2	9.6	9.6	9.6	9.6	9.6
70°	6.8	6.8	6.8	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
72.5°	5.5	6.8	6.8	6.8	6.8	8.2	8.2	8.2	8.2	8.2	6.8
75°	5.5	5.5	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
77.5°	5.5	5.5	5.5	6.8	6.8	6.8	6.8	6.8	6.8	5.5	5.5
80°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.1
82.5°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.1	4.1	4.1
85°	5.5	4.1	5.5	5.5	5.5	4.1	4.1	4.1	4.1	4.1	2.7
87.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	2.7	2.7
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: LDSQA4A28835D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	304.1	304.1	304.1	304.1	304.1	304.1	304.1	304.1
2.5°	241.1	238.4	239.7	239.7	237.0	235.6	235.6	237.0
5°	208.2	205.5	206.9	206.9	204.1	202.7	202.7	204.1
7.5°	183.6	180.8	182.2	182.2	179.5	179.5	179.5	179.5
10°	164.4	163.0	163.0	163.0	160.3	161.6	160.3	158.9
12.5°	146.6	146.6	146.6	146.6	145.2	146.6	145.2	145.2
15°	132.9	132.9	134.2	134.2	134.2	135.6	135.6	135.6
17.5°	121.9	123.3	124.7	126.0	126.0	127.4	127.4	127.4
20°	111.0	113.7	115.1	116.4	116.4	119.2	117.8	119.2
22.5°	100.0	102.7	104.1	105.5	106.9	108.2	108.2	109.6
25°	90.4	93.2	94.5	95.9	97.3	100.0	100.0	100.0
27.5°	80.8	83.6	84.9	87.7	89.0	91.8	91.8	91.8
30°	71.2	74.0	75.3	76.7	79.5	82.2	82.2	83.6
32.5°	61.6	65.8	67.1	68.5	71.2	74.0	75.3	75.3
35°	54.8	57.5	58.9	61.6	63.0	67.1	67.1	67.1
37.5°	47.9	50.7	53.4	54.8	56.2	58.9	60.3	61.6
40°	42.5	45.2	46.6	47.9	50.7	53.4	54.8	54.8
42.5°	37.0	39.7	41.1	42.5	43.8	46.6	46.6	46.6
45°	32.9	34.2	35.6	37.0	38.4	39.7	41.1	41.1
47.5°	27.4	30.1	30.1	31.5	32.9	35.6	35.6	37.0
50°	23.3	26.0	26.0	27.4	28.8	30.1	31.5	31.5
52.5°	20.5	21.9	23.3	23.3	24.7	26.0	27.4	27.4
55°	17.8	19.2	19.2	20.5	20.5	21.9	23.3	23.3
57.5°	15.1	16.4	17.8	17.8	17.8	19.2	19.2	20.5
60°	13.7	15.1	15.1	15.1	15.1	16.4	16.4	16.4
62.5°	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
65°	11.0	11.0	11.0	11.0	9.6	9.6	9.6	9.6
67.5°	9.6	9.6	9.6	9.6	8.2	8.2	8.2	8.2
70°	8.2	8.2	8.2	8.2	6.8	6.8	6.8	5.5
72.5°	6.8	6.8	6.8	6.8	6.8	5.5	5.5	5.5
75°	6.8	5.5	5.5	5.5	5.5	5.5	4.1	4.1
77.5°	5.5	5.5	5.5	4.1	4.1	4.1	4.1	4.1
80°	4.1	4.1	4.1	4.1	4.1	2.7	2.7	2.7
82.5°	4.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7
85°	2.7	2.7	2.7	2.7	1.4	1.4	1.4	1.4
87.5°	2.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)