

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: P182715

Luminaire Tested: **LDSQA4A09930D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182715
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: LDSQA4A09930D010TE 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 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 939.7 lumens
Efficiency: N/A
Efficacy: 67.9 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

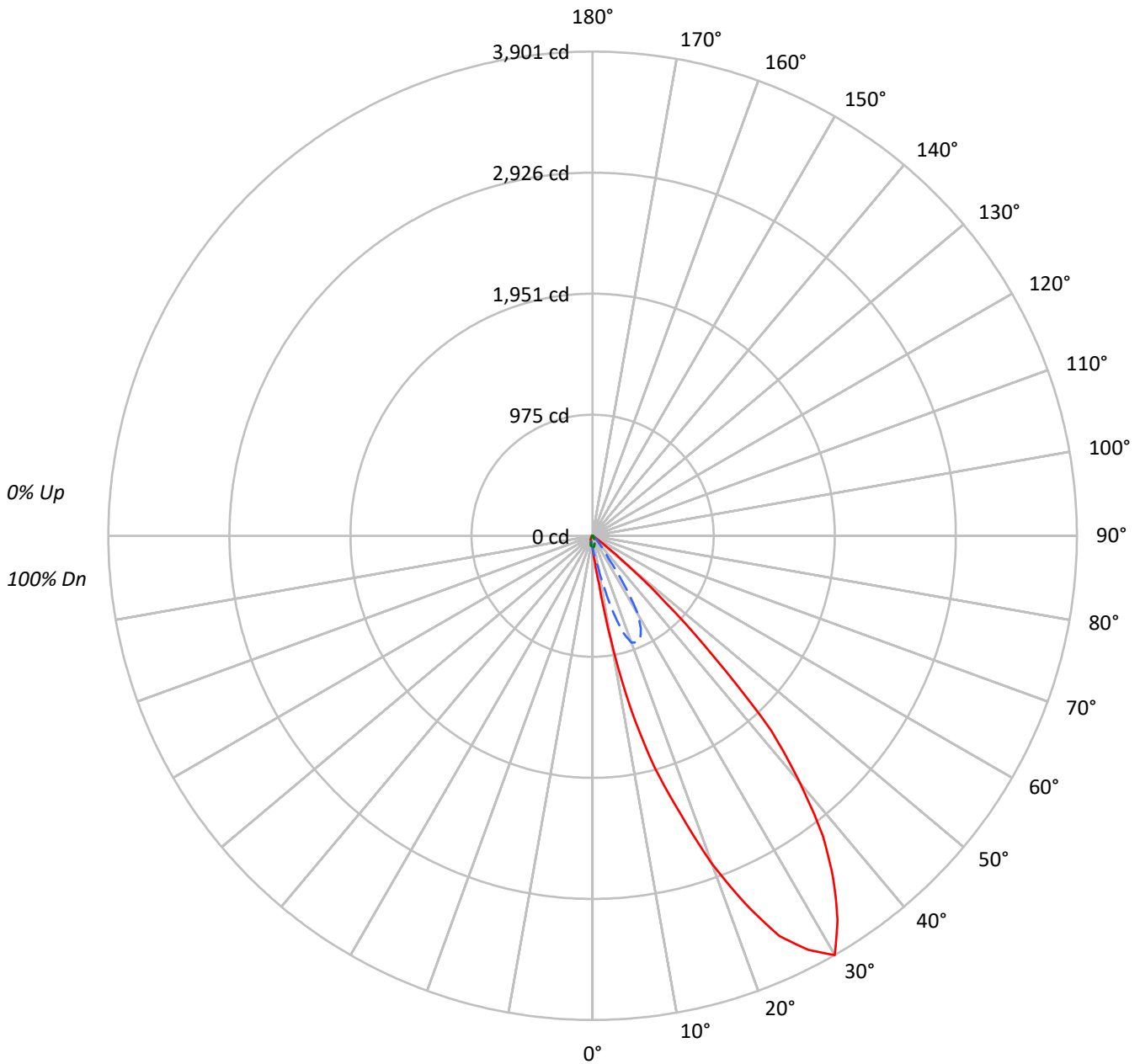
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
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	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	85	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°	9503	9503	9503
5°	21034	8995	6321
10°	84224	7811	5282
15°	194147	6208	4634
20°	289814	4402	4134
25°	380123	2939	3688
30°	436352	1857	3222
35°	400096	1183	2791
40°	328093	771	2377
45°	190214	534	1918
50°	53909	392	1582
55°	4932	372	1334
60°	756	426	1104
65°	206	390	802
70°	255	482	623
75°	337	636	636
80°	0	948	502
85°	0	1890	445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.9	1.5
10°-20°	125.0	13.3
20°-30°	304.5	32.4
30°-40°	330.0	35.1
40°-50°	149.5	15.9
50°-60°	11.6	1.2
60°-70°	2.4	0.3
70°-80°	1.7	0.2
80°-90°	1.1	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°	443.4	47.2
0°-40°	773.4	82.3
0°-60°	934.4	99.4
0°-90°	939.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	939.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	98	98	98	98	98	
5°	216	160	92	70	65	39
15°	1936	633	62	45	46	563
25°	3556	909	28	27	34	1621
35°	3383	231	10	16	24	2081
45°	1388	29	4	9	14	1096
55°	29	4	2	5	8	67
65°	1	1	2	4	4	1
75°	1	1	2	3	2	1
85°	0	1	2	1	0	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°	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1
2.5°	147.0	144.4	145.7	142.2	140.0	138.3	139.1	138.3	132.6	131.3	126.9
5°	216.3	212.4	212.4	205.0	197.2	192.4	192.4	186.7	174.5	168.8	159.6
7.5°	387.8	379.9	373.4	350.3	320.2	303.1	298.8	274.8	243.8	224.2	201.1
10°	856.2	823.5	800.4	740.2	659.5	609.4	588.0	505.1	406.5	332.4	265.2
12.5°	1439.8	1395.4	1354.8	1256.2	1140.2	1061.2	1018.9	896.8	705.3	568.3	425.3
15°	1935.8	1887.8	1839.8	1719.9	1597.3	1528.8	1451.2	1289.4	1036.4	841.8	633.3
17.5°	2342.7	2315.7	2266.4	2090.6	1936.2	1829.4	1748.7	1537.1	1276.7	1054.7	818.7
20°	2811.2	2744.5	2656.4	2443.1	2232.0	2098.0	1984.6	1726.9	1425.9	1170.7	916.9
22.5°	3205.5	3158.0	3031.5	2750.1	2439.6	2325.3	2186.6	1876.5	1521.8	1220.0	928.2
25°	3556.2	3481.6	3322.9	2988.3	2670.3	2475.8	2305.7	1957.6	1557.2	1223.5	909.4
27.5°	3761.7	3664.4	3477.7	3113.1	2750.1	2535.1	2346.7	1971.6	1534.9	1177.3	841.0
30°	3900.8	3707.1	3500.8	3114.4	2724.8	2505.0	2309.6	1901.3	1442.5	1071.7	725.8
32.5°	3671.4	3559.3	3362.1	2990.5	2587.0	2372.4	2178.3	1749.1	1298.1	915.1	505.1
35°	3383.1	3292.3	3120.9	2751.9	2380.3	2177.9	1972.0	1553.7	1110.1	629.0	231.2
37.5°	3048.1	2977.0	2792.5	2455.3	2128.1	1930.1	1723.8	1324.3	781.6	311.9	140.5
40°	2594.4	2534.2	2382.9	2112.0	1810.6	1622.2	1432.0	990.6	424.4	174.0	91.6
42.5°	2132.5	2081.9	1944.1	1709.8	1445.1	1289.8	1122.3	603.7	211.1	109.5	51.0
45°	1388.4	1325.1	1251.0	1143.7	1012.8	917.3	719.7	291.4	125.2	61.1	29.2
47.5°	796.0	754.2	632.5	499.0	405.2	369.9	269.1	135.7	68.9	35.3	17.9
50°	357.7	330.6	277.4	225.9	163.6	127.8	108.6	68.0	34.0	19.2	12.2
52.5°	88.1	89.9	85.1	74.6	66.3	56.3	48.9	31.8	17.9	11.8	7.9
55°	29.2	29.7	27.0	25.7	23.6	21.8	20.1	14.4	10.9	10.5	3.9
57.5°	10.5	10.5	10.9	10.0	9.6	9.2	8.7	7.4	6.5	3.9	2.2
60°	3.9	3.9	3.9	4.4	4.4	4.4	4.8	4.4	3.1	2.2	1.7
62.5°	1.7	1.7	1.7	1.7	2.2	2.2	2.6	2.2	1.7	1.7	1.3
65°	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.3
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.3
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.3
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	1.3
80°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	1.3
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	1.3
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	1.3
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
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°	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1
2.5°	122.6	120.0	114.7	110.8	107.7	107.3	104.7	100.3	98.6	95.5	92.9
5°	150.9	144.4	136.1	128.2	122.6	119.5	110.4	102.1	97.3	92.5	88.1
7.5°	181.5	166.6	152.2	139.6	131.7	126.9	116.0	102.5	93.8	86.8	81.1
10°	219.8	189.3	164.4	144.8	134.3	127.8	114.7	98.6	87.7	79.4	73.7
12.5°	307.5	224.2	175.8	147.4	134.3	125.2	109.5	93.3	81.1	71.1	65.0
15°	457.6	313.2	208.5	148.7	130.0	119.5	101.6	84.6	72.4	61.9	56.3
17.5°	598.9	412.2	260.4	157.9	127.4	111.2	91.2	74.6	61.9	51.9	47.1
20°	672.2	461.5	289.2	164.9	123.0	100.8	78.9	63.7	51.5	42.7	38.8
22.5°	673.9	457.1	275.2	148.7	106.9	86.4	67.6	52.3	41.9	34.5	31.4
25°	632.5	404.3	226.4	116.0	86.4	72.4	56.3	42.7	32.7	27.5	25.3
27.5°	554.4	327.1	167.1	83.7	67.6	57.6	44.1	32.7	24.9	21.4	20.1
30°	428.8	202.4	92.5	61.9	51.0	43.2	31.8	21.8	18.8	16.6	15.7
32.5°	212.9	99.0	65.4	44.1	34.9	27.5	20.1	16.1	14.4	13.1	12.6
35°	115.6	71.1	41.0	26.6	20.9	17.4	13.5	11.3	10.5	10.0	10.0
37.5°	80.7	42.3	24.9	16.1	13.1	11.8	9.6	8.3	7.9	7.9	7.9
40°	44.5	25.3	15.3	10.5	8.7	7.9	6.5	6.1	6.1	6.1	6.5
42.5°	25.7	15.7	10.5	7.4	6.1	5.7	4.8	4.4	4.8	4.8	5.2
45°	16.6	11.8	7.0	5.2	4.4	3.9	3.5	3.5	3.9	3.9	4.4
47.5°	11.8	8.3	4.8	3.5	2.6	2.6	2.6	2.6	3.1	3.5	3.9
50°	7.0	4.4	2.6	2.2	1.7	1.7	1.7	2.2	2.6	2.6	3.1
52.5°	3.9	2.6	1.7	1.7	1.3	1.3	1.7	1.7	2.2	2.6	3.1
55°	2.2	1.7	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.2	2.6
57.5°	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.2	2.2
60°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.2	2.2
62.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	2.2
65°	1.3	1.3	1.3	1.7	1.3	1.7	1.7	1.7	1.7	1.7	2.2
67.5°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.2
70°	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.2
72.5°	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.2
75°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
85°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
87.5°	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1
2.5°	92.0	89.0	86.8	85.9	84.2	84.6	83.3	82.4	79.8	79.8	78.1
5°	85.1	81.1	78.5	77.2	75.5	75.0	73.7	72.4	69.8	69.4	68.0
7.5°	77.6	73.7	70.7	69.4	67.6	67.2	65.4	64.6	62.4	61.9	60.6
10°	69.8	65.4	62.8	61.5	59.8	59.8	58.4	57.6	55.8	55.8	55.0
12.5°	61.5	57.6	55.8	54.1	53.2	53.2	52.3	51.5	50.2	50.6	50.2
15°	52.8	49.7	48.0	47.1	46.7	46.7	46.2	45.8	44.9	45.8	44.9
17.5°	44.5	42.3	41.0	40.6	40.1	40.1	40.1	40.6	40.1	41.0	41.0
20°	36.6	34.9	34.0	34.0	33.6	34.5	34.5	35.3	35.3	36.6	37.1
22.5°	30.1	28.8	28.4	28.4	28.4	29.2	29.7	30.5	31.0	32.3	33.2
25°	24.0	23.6	23.6	23.6	24.0	24.9	25.7	26.6	27.0	28.8	29.2
27.5°	19.6	19.2	19.6	19.6	20.1	21.4	22.2	23.1	24.0	25.3	26.2
30°	15.7	15.7	16.1	16.6	17.0	17.9	19.2	20.1	20.9	22.2	23.1
32.5°	12.6	13.1	13.5	14.0	14.0	15.3	16.1	17.4	17.9	19.2	20.1
35°	10.5	10.9	11.3	11.8	11.8	13.1	14.0	14.8	15.7	16.6	17.4
37.5°	8.3	8.7	9.6	10.0	10.0	11.3	11.8	12.6	13.5	14.4	15.3
40°	7.0	7.4	8.3	8.3	8.7	9.6	10.0	10.9	11.8	12.6	13.5
42.5°	5.7	6.1	7.0	7.4	7.4	8.3	8.7	9.6	10.0	10.9	11.3
45°	5.2	5.2	6.1	6.1	6.5	7.0	7.9	8.3	8.7	9.6	10.0
47.5°	4.4	4.8	5.2	5.7	5.7	6.1	6.5	7.0	7.4	8.3	8.7
50°	3.5	3.9	4.8	4.8	4.8	5.7	6.1	6.5	6.5	7.0	7.4
52.5°	3.5	3.5	3.9	4.4	4.4	4.8	5.2	5.7	5.7	6.1	6.5
55°	3.1	3.1	3.5	3.9	3.9	4.4	4.8	4.8	5.2	5.2	5.7
57.5°	2.6	3.1	3.5	3.5	3.5	3.9	4.4	4.4	4.8	4.8	5.2
60°	2.6	3.1	3.1	3.5	3.5	3.9	3.9	3.9	4.4	4.4	4.4
62.5°	2.6	2.6	3.1	3.1	3.1	3.5	3.5	3.9	3.9	3.9	3.9
65°	2.6	2.6	3.1	3.1	3.1	3.5	3.5	3.5	3.5	3.5	3.5
67.5°	2.2	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.1	3.1
70°	2.2	2.2	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.1
72.5°	2.2	2.2	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
75°	2.2	2.2	2.2	2.2	2.2	2.6	2.6	2.6	2.6	2.2	2.2
77.5°	1.7	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.7
80°	1.7	1.7	2.2	1.7	2.2	2.2	2.2	2.2	1.7	1.7	1.7
82.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3
85°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	0.9
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	0.9	0.9
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: LDSQA4A09930D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1
2.5°	77.2	78.1	77.2	78.1	75.9	76.8	77.6	75.5
5°	67.2	66.3	66.7	67.6	65.9	66.3	66.7	65.0
7.5°	60.2	60.6	59.8	60.6	59.3	59.8	60.2	58.9
10°	54.5	55.0	54.5	55.0	53.7	54.5	55.0	53.7
12.5°	49.3	50.2	49.7	50.6	49.3	50.2	51.0	49.3
15°	45.4	46.2	45.8	46.7	45.8	46.7	47.5	46.2
17.5°	41.4	42.3	42.3	43.2	42.7	43.6	44.5	43.2
20°	37.5	38.8	38.8	39.7	39.7	40.1	41.4	40.1
22.5°	34.0	35.3	35.3	36.2	36.2	37.1	37.9	37.1
25°	30.1	31.8	32.3	33.2	33.2	34.0	35.3	34.5
27.5°	27.5	28.8	29.2	30.1	30.5	31.4	32.3	31.4
30°	24.0	25.7	26.2	27.0	27.5	28.8	29.2	28.8
32.5°	21.4	22.7	23.1	24.0	24.9	25.7	26.6	26.2
35°	18.8	20.1	20.5	21.4	21.8	23.1	24.0	23.6
37.5°	16.6	17.9	18.3	18.8	19.2	20.5	21.4	20.9
40°	14.4	15.3	15.7	16.6	17.0	17.9	18.8	18.8
42.5°	12.6	13.5	14.0	14.4	14.8	15.7	16.6	16.1
45°	10.9	11.8	12.2	12.6	13.1	13.5	14.4	14.0
47.5°	9.2	10.0	10.5	10.9	11.3	11.8	12.6	12.2
50°	7.9	8.7	8.7	9.2	9.6	10.0	10.9	10.5
52.5°	7.0	7.4	7.9	7.9	8.3	8.7	9.6	9.2
55°	6.1	6.5	6.5	7.0	7.0	7.4	7.9	7.9
57.5°	5.2	5.7	5.7	6.1	6.1	6.5	7.0	7.0
60°	4.8	4.8	5.2	5.2	5.2	5.7	5.7	5.7
62.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
65°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
67.5°	3.1	3.1	3.1	3.1	3.1	2.6	2.6	2.6
70°	2.6	2.6	2.6	2.6	2.6	2.2	2.2	2.2
72.5°	2.6	2.6	2.2	2.2	2.2	2.2	2.2	1.7
75°	2.2	2.2	2.2	2.2	1.7	1.7	1.7	1.7
77.5°	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3
80°	1.7	1.3	1.3	1.3	1.3	1.3	1.3	0.9
82.5°	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9
85°	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
87.5°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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)