

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: P182647

Luminaire Tested: **LDSQA4A09830D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182647  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26830)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA4A09830D010TE LAR15SP 4LSQA1H-LSF-20 30°  
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,  
SELF-FLANGED, 15° SPOT WITH SOLITE LENS, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 966.9 lumens  
Efficiency: N/A  
Efficacy: 69.9 lumens/watt  
Spacing Criteria (0/90/45): 2.28 / 0.64 / 1.15  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

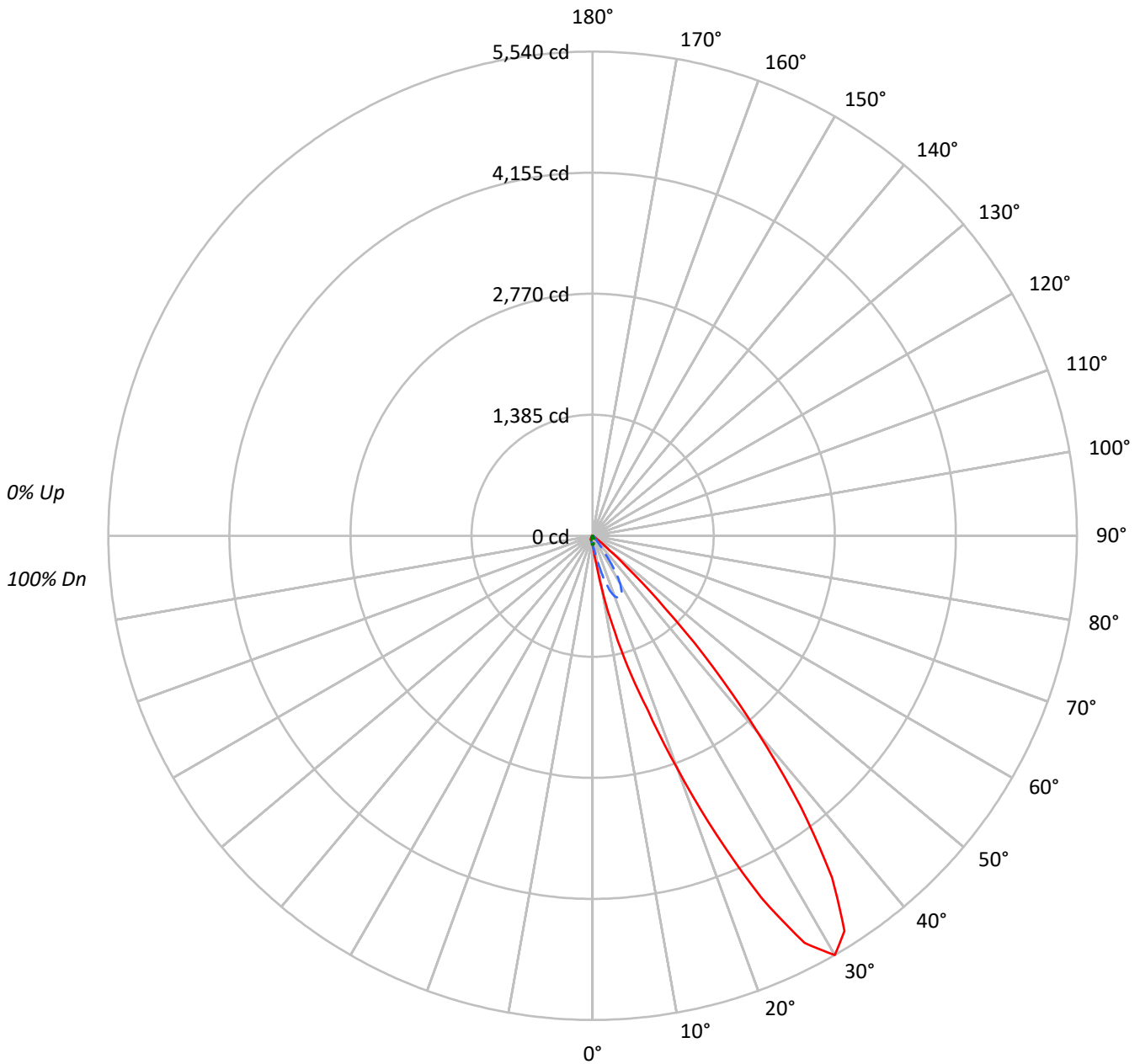
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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								
1	112	109	106	104	110	107	105	102	103	101	99	99	98	96	96	94	93	91								
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83								
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74								
4	92	83	77	72	90	82	76	71	80	75	70	78	73	70	76	72	69	67								
5	86	76	69	64	85	75	69	64	73	68	63	72	67	63	70	66	62	60								
6	81	70	63	58	79	69	62	57	67	61	57	66	61	57	64	60	56	54								
7	75	64	57	52	74	63	57	52	62	56	51	61	55	51	59	55	51	49								
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44								
9	66	54	47	42	65	54	47	42	53	46	42	52	46	42	51	46	42	40								
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36								

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	10114	10114	10114
5°	19371	9627	7819
10°	63331	8539	6650
15°	155093	7051	5877
20°	292216	5381	5268
25°	489162	3816	4607
30°	619671	2618	3926
35°	564635	1703	3335
40°	371849	1214	2833
45°	161088	808	2329
50°	28575	558	1929
55°	4594	456	1621
60°	1143	407	1240
65°	367	481	986
70°	312	595	765
75°	412	599	599
80°	0	893	614
85°	0	1778	556



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	13.4	1.4
10°-20°	107.6	11.1
20°-30°	324.0	33.5
30°-40°	368.7	38.1
40°-50°	136.3	14.1
50°-60°	10.8	1.1
60°-70°	2.9	0.3
70°-80°	2.0	0.2
80°-90°	1.2	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°	444.9	46.0
0°-40°	813.6	84.1
0°-60°	960.8	99.4
0°-90°	966.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	966.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	104	104	104	104	104	
5°	199	146	99	83	80	32
15°	1546	522	70	55	59	485
25°	4576	764	36	35	43	2089
35°	4774	267	14	20	28	2839
45°	1176	31	6	11	17	995
55°	27	6	3	6	10	44
65°	2	2	2	4	4	2
75°	1	2	2	3	2	1
85°	0	1	2	2	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°	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4
2.5°	134.2	135.3	134.2	132.1	132.1	129.4	128.3	127.3	124.6	123.0	120.9
5°	199.2	196.0	193.3	186.9	184.8	178.9	174.7	168.8	160.8	153.9	146.4
7.5°	340.8	336.0	325.9	306.7	295.0	280.6	269.4	250.8	226.8	207.1	187.4
10°	643.8	623.0	599.1	555.9	524.5	491.0	464.3	414.3	354.1	304.6	256.7
12.5°	1037.3	1038.9	994.2	921.2	863.2	804.1	758.3	665.6	559.1	465.9	373.8
15°	1546.4	1517.1	1470.8	1358.9	1242.8	1157.1	1084.2	943.6	792.9	656.6	522.4
17.5°	2082.6	2094.8	1986.7	1804.1	1620.4	1492.1	1381.8	1168.8	989.9	821.1	657.1
20°	2834.5	2750.3	2595.9	2299.8	2014.4	1828.6	1665.1	1388.7	1139.0	924.4	740.2
22.5°	3701.4	3565.6	3251.4	2834.5	2402.6	2145.4	1917.5	1537.3	1233.8	977.1	768.4
25°	4576.3	4472.4	3971.9	3348.9	2730.1	2396.8	2101.8	1638.0	1279.1	989.4	763.6
27.5°	5251.5	5082.1	4511.8	3699.8	2925.5	2532.0	2187.5	1668.8	1269.5	959.6	718.3
30°	5539.6	5325.5	4693.4	3779.7	2927.1	2509.7	2144.9	1607.6	1201.3	883.9	633.1
32.5°	5361.7	5114.6	4477.2	3558.7	2726.9	2335.0	1980.4	1475.0	1088.4	765.2	475.5
35°	4774.4	4528.3	3937.8	3122.6	2407.4	2065.0	1756.7	1302.0	927.1	567.1	267.3
37.5°	3909.6	3699.8	3277.5	2617.2	2028.8	1750.8	1494.2	1096.9	690.6	325.4	134.2
40°	2940.4	2792.9	2539.5	2075.7	1642.2	1430.8	1224.2	840.3	419.6	163.5	76.1
42.5°	2038.4	1942.5	1815.3	1535.7	1266.8	1121.4	955.8	561.3	215.7	90.0	47.4
45°	1175.8	1115.6	1080.4	961.2	856.3	785.4	639.0	302.5	109.2	53.8	31.4
47.5°	519.2	479.2	462.2	412.2	383.4	364.2	289.1	128.9	58.6	34.6	26.1
50°	189.6	189.6	190.1	167.2	136.9	123.0	96.4	57.0	33.0	27.2	19.2
52.5°	67.1	66.0	68.7	65.0	57.0	51.1	42.6	28.8	20.2	17.0	10.6
55°	27.2	26.1	27.2	25.6	24.0	22.4	19.7	15.4	12.8	10.6	5.9
57.5°	12.2	12.2	12.8	12.2	12.2	11.2	10.1	11.7	9.1	5.9	3.7
60°	5.9	5.9	6.4	6.4	6.4	5.9	5.9	6.4	5.3	3.7	2.7
62.5°	2.7	2.7	3.2	3.2	3.2	3.2	3.2	3.7	2.7	2.1	1.6
65°	1.6	1.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
67.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6	1.6
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.6
80°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	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



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4
2.5°	118.7	117.1	114.0	112.4	110.2	108.6	107.6	105.4	103.3	101.7	100.6
5°	139.5	133.7	126.7	121.4	117.1	114.5	110.2	106.5	102.2	99.0	96.4
7.5°	169.9	155.5	140.0	129.4	123.5	118.2	110.8	104.4	98.5	94.3	90.5
10°	217.3	186.4	159.2	138.4	128.3	120.9	109.2	100.1	92.7	86.8	83.1
12.5°	296.1	232.7	184.8	149.6	134.2	123.0	106.5	94.3	85.2	79.3	74.5
15°	404.2	300.9	219.9	162.9	141.1	125.1	102.2	87.3	77.2	70.3	66.0
17.5°	505.9	372.2	259.9	178.9	148.0	126.2	96.4	78.3	67.6	61.2	57.0
20°	569.8	418.5	286.5	188.0	150.2	123.0	88.4	68.7	58.0	52.2	47.9
22.5°	584.7	423.9	284.4	179.5	141.1	113.4	77.2	59.1	49.0	43.7	39.9
25°	562.8	394.0	254.5	155.0	120.3	95.3	64.4	47.9	40.5	35.7	33.0
27.5°	508.0	335.5	201.3	116.6	90.0	70.3	49.0	37.3	32.5	28.8	27.2
30°	409.5	235.9	126.2	72.4	57.5	46.3	35.1	28.8	25.0	23.4	21.8
32.5°	248.1	121.4	66.6	43.1	36.2	31.4	25.6	21.3	19.2	18.1	17.6
35°	118.2	63.9	41.0	29.3	25.6	22.4	18.6	16.0	14.9	14.4	14.4
37.5°	67.1	41.5	27.7	19.7	17.6	15.4	13.8	12.2	11.7	11.7	11.7
40°	42.6	26.6	18.1	14.4	12.8	11.7	10.6	9.6	9.6	9.6	9.6
42.5°	27.7	19.2	13.8	10.6	9.6	9.1	8.0	7.5	7.5	7.5	8.0
45°	21.8	16.0	11.2	8.5	7.5	6.9	6.4	5.9	5.9	5.9	6.4
47.5°	18.6	11.2	7.5	5.9	4.8	4.8	4.3	4.3	4.3	4.8	5.3
50°	11.2	6.9	4.8	3.7	3.2	3.2	3.2	3.2	3.2	3.7	4.3
52.5°	6.4	4.3	3.2	2.7	2.1	2.1	2.1	2.1	2.7	3.2	3.2
55°	4.3	3.2	2.1	2.1	1.6	1.6	1.6	2.1	2.1	2.7	3.2
57.5°	2.7	2.1	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.7	2.7
60°	2.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.7
62.5°	1.6	1.6	2.1	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.7
65°	1.6	1.6	2.1	2.1	1.6	1.6	1.6	1.6	1.6	2.1	2.7
67.5°	1.6	1.6	2.1	2.1	2.1	2.1	1.6	1.6	1.6	2.1	2.1
70°	1.6	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6	2.1	2.1
72.5°	1.6	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6	2.1	2.1
75°	1.6	1.6	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6	2.1
77.5°	1.6	1.6	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6	2.1
80°	1.6	1.6	1.6	2.1	1.6	2.1	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	1.6	1.6	1.6	1.6	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	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°	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4
2.5°	99.0	98.0	96.4	95.8	96.4	95.8	93.2	92.7	91.6	91.6	91.6
5°	93.7	92.1	90.0	88.9	88.9	87.9	85.2	84.7	83.1	83.1	82.5
7.5°	87.3	85.2	82.5	81.5	81.5	80.4	77.7	76.7	75.6	75.6	75.1
10°	79.9	77.2	74.5	74.0	73.5	71.9	70.3	69.8	68.2	68.7	68.2
12.5°	71.4	69.2	67.1	66.0	66.0	64.4	63.4	62.8	62.3	62.3	62.3
15°	63.4	60.7	58.6	58.0	58.0	57.5	56.4	56.4	55.4	56.4	56.4
17.5°	54.3	52.2	51.7	50.6	51.1	50.6	49.5	50.1	50.1	50.6	51.1
20°	45.8	44.2	43.7	43.1	43.7	43.7	43.1	43.7	44.2	45.8	46.9
22.5°	38.3	37.3	37.3	36.7	37.3	37.8	37.3	38.3	39.4	40.5	42.1
25°	31.9	31.4	31.4	31.4	31.9	32.5	33.0	34.1	34.6	36.2	37.3
27.5°	26.1	26.1	26.1	26.6	27.2	27.7	28.2	29.8	30.4	31.9	33.0
30°	21.8	21.3	21.8	22.4	22.9	24.0	24.5	25.6	26.1	27.7	28.8
32.5°	17.6	18.1	18.6	19.2	19.7	20.2	20.8	21.8	22.9	24.0	25.0
35°	14.9	14.9	15.4	16.0	16.5	17.6	18.1	18.6	19.7	20.8	21.3
37.5°	12.2	12.8	13.3	13.8	14.4	14.9	15.4	16.0	16.5	17.6	18.6
40°	10.1	10.6	11.2	11.7	11.7	12.8	12.8	13.8	14.4	15.4	16.5
42.5°	8.5	9.1	9.6	10.1	10.1	10.6	11.2	11.7	12.2	13.3	14.4
45°	6.9	7.5	8.0	8.5	8.5	9.1	9.6	10.1	10.6	11.7	12.2
47.5°	5.9	6.4	6.9	7.5	7.5	8.0	8.5	9.1	9.1	10.1	10.6
50°	4.8	5.3	5.9	6.4	6.4	6.9	7.5	8.0	8.0	8.5	9.1
52.5°	3.7	4.3	5.3	5.3	5.9	6.4	6.4	6.9	6.9	7.5	8.0
55°	3.7	4.3	4.8	4.8	5.3	5.9	5.9	6.4	6.4	6.4	6.9
57.5°	3.2	3.7	4.3	4.8	4.8	5.3	5.3	5.3	5.3	5.9	5.9
60°	3.2	3.7	3.7	4.3	4.3	4.8	4.8	4.8	4.8	5.3	5.3
62.5°	3.2	3.2	3.7	3.7	4.3	4.3	4.3	4.8	4.8	4.8	4.8
65°	2.7	3.2	3.7	3.7	3.7	4.3	4.3	4.3	4.3	4.3	4.3
67.5°	2.7	3.2	3.2	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
70°	2.7	2.7	3.2	3.2	3.2	3.7	3.7	3.7	3.2	3.7	3.2
72.5°	2.1	2.7	2.7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
75°	2.1	2.7	2.7	2.7	2.7	3.2	3.2	2.7	2.7	2.7	2.7
77.5°	2.1	2.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.1
80°	2.1	2.1	2.1	2.1	2.7	2.7	2.1	2.1	2.1	2.1	2.1
82.5°	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6
85°	1.6	1.6	2.1	2.1	2.1	2.1	1.6	1.6	1.6	1.6	1.1
87.5°	1.6	1.6	1.6	2.1	1.6	1.6	1.6	1.6	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





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CATALOG NUMBER: LDSQA4A09830D010TE LAR15SP 4LSQA1H-LSF-20 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4
2.5°	90.0	89.5	90.0	89.5	89.5	90.0	88.4	89.5
5°	81.5	80.4	80.9	80.4	79.9	80.4	79.3	80.4
7.5°	74.0	73.5	73.5	73.5	73.0	73.5	72.4	73.5
10°	67.6	67.1	67.1	67.1	67.1	67.6	66.6	67.6
12.5°	61.2	61.2	61.8	61.2	61.8	62.3	61.2	62.3
15°	55.9	56.4	57.0	57.0	57.5	58.0	57.5	58.6
17.5°	51.7	52.2	53.2	53.2	53.8	54.8	54.3	55.4
20°	47.4	47.9	49.0	49.0	49.5	50.6	50.1	51.1
22.5°	42.6	43.7	44.2	44.7	45.3	46.3	45.8	46.9
25°	37.8	39.4	39.9	40.5	41.0	42.1	42.1	43.1
27.5°	34.1	35.1	35.7	36.2	37.3	38.3	38.3	38.9
30°	29.8	30.9	31.9	32.5	33.0	34.1	34.1	35.1
32.5°	26.1	27.2	27.7	28.2	29.3	30.4	30.9	31.4
35°	22.4	24.0	24.5	25.6	26.1	27.7	27.7	28.2
37.5°	19.7	20.8	21.8	22.4	23.4	24.5	24.5	25.6
40°	17.6	18.6	19.2	19.7	20.8	21.8	21.8	22.4
42.5°	14.9	16.5	17.0	17.6	18.1	19.2	19.7	20.2
45°	13.3	13.8	14.4	14.9	15.4	16.5	16.5	17.0
47.5°	11.2	11.7	12.2	12.8	13.3	13.8	14.4	14.9
50°	9.6	10.1	10.6	10.6	11.2	12.2	12.2	12.8
52.5°	8.0	8.5	9.1	9.1	9.6	10.6	10.6	11.2
55°	6.9	7.5	8.0	8.0	8.5	9.1	9.1	9.6
57.5°	6.4	6.4	6.9	6.9	7.5	7.5	8.0	8.0
60°	5.3	5.9	5.9	5.9	6.4	6.4	6.4	6.4
62.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	5.3
65°	4.3	4.3	4.3	4.3	4.3	4.3	3.7	4.3
67.5°	3.7	3.7	3.7	3.7	3.2	3.2	3.2	3.2
70°	3.2	3.2	3.2	3.2	3.2	2.7	2.7	2.7
72.5°	2.7	2.7	2.7	2.7	2.7	2.1	2.1	2.1
75°	2.7	2.7	2.1	2.1	2.1	2.1	2.1	1.6
77.5°	2.1	2.1	2.1	2.1	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.1
82.5°	1.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	0.5	0.5	0.5	0.5
87.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)