

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: P182653

Luminaire Tested: **LDSQA4A09940D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182653
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: LDSQA4A09940D010TE 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 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 867.2 lumens
Efficiency: N/A
Efficacy: 62.7 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

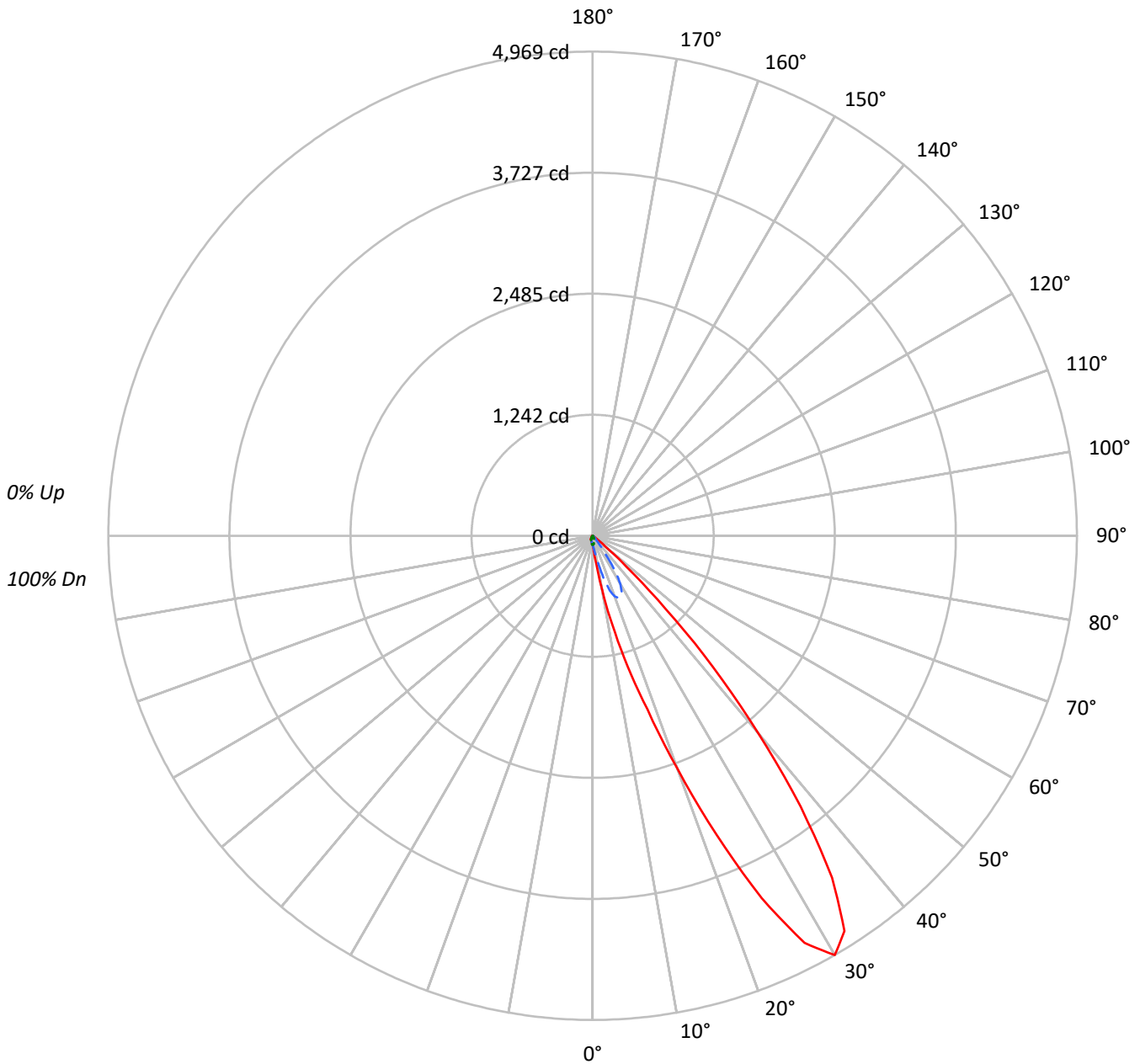
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	9068	9068	9068
5°	17368	8635	7011
10°	56799	7663	5971
15°	139106	6318	5265
20°	262093	4825	4732
25°	438742	3420	4137
30°	555798	2349	3524
35°	506438	1526	2992
40°	333531	1088	2542
45°	144483	726	2096
50°	25621	497	1733
55°	4121	405	1453
60°	1027	368	1104
65°	321	436	871
70°	283	538	680
75°	374	524	524
80°	0	781	558
85°	0	1556	556



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	12.0	1.4
10°-20°	96.5	11.1
20°-30°	290.6	33.5
30°-40°	330.7	38.1
40°-50°	122.3	14.1
50°-60°	9.7	1.1
60°-70°	2.6	0.3
70°-80°	1.8	0.2
80°-90°	1.0	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°	399.0	46.0
0°-40°	729.8	84.1
0°-60°	861.8	99.4
0°-90°	867.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	867.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	94	94	94	94	94	
5°	179	131	89	74	72	29
15°	1387	468	63	50	52	435
25°	4105	685	32	31	39	1874
35°	4282	240	13	18	25	2546
45°	1055	28	5	10	15	893
55°	24	5	2	6	9	40
65°	1	1	2	4	4	2
75°	1	1	1	2	1	1
85°	0	1	1	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P182653

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6
2.5°	120.4	121.3	120.4	118.4	118.4	116.1	115.1	114.1	111.8	110.3	108.4
5°	178.6	175.8	173.4	167.6	165.7	160.5	156.7	151.4	144.2	138.0	131.3
7.5°	305.7	301.4	292.3	275.1	264.6	251.7	241.7	225.0	203.5	185.8	168.1
10°	577.4	558.8	537.3	498.6	470.4	440.4	416.5	371.6	317.6	273.2	230.2
12.5°	930.4	931.8	891.7	826.3	774.2	721.2	680.1	597.0	501.5	417.9	335.3
15°	1387.0	1360.7	1319.2	1218.9	1114.7	1037.8	972.4	846.3	711.2	588.9	468.5
17.5°	1867.9	1878.9	1782.0	1618.1	1453.4	1338.3	1239.4	1048.4	887.9	736.5	589.4
20°	2542.3	2466.9	2328.4	2062.8	1806.8	1640.1	1493.5	1245.6	1021.6	829.1	663.9
22.5°	3319.9	3198.1	2916.3	2542.3	2155.0	1924.3	1719.9	1378.9	1106.6	876.4	689.2
25°	4104.6	4011.5	3562.5	3003.7	2448.7	2149.7	1885.1	1469.1	1147.2	887.4	684.9
27.5°	4710.2	4558.3	4046.8	3318.4	2624.0	2271.0	1962.0	1496.8	1138.6	860.7	644.3
30°	4968.6	4776.6	4209.7	3390.1	2625.4	2251.0	1923.8	1441.9	1077.5	792.8	567.9
32.5°	4809.1	4587.5	4015.8	3191.9	2445.8	2094.3	1776.2	1323.0	976.2	686.3	426.5
35°	4282.3	4061.6	3531.9	2800.7	2159.3	1852.2	1575.6	1167.8	831.5	508.7	239.8
37.5°	3506.6	3318.4	2939.7	2347.5	1819.7	1570.4	1340.2	983.9	619.5	291.8	120.4
40°	2637.4	2505.1	2277.7	1861.7	1473.0	1283.3	1098.0	753.7	376.4	146.6	68.3
42.5°	1828.3	1742.3	1628.2	1377.4	1136.2	1005.8	857.3	503.4	193.4	80.7	42.5
45°	1054.6	1000.6	969.1	862.1	768.0	704.5	573.1	271.3	97.9	48.2	28.2
47.5°	465.7	429.9	414.6	369.7	343.9	326.7	259.3	115.6	52.5	31.0	23.4
50°	170.0	170.0	170.5	150.0	122.7	110.3	86.4	51.1	29.6	24.4	17.2
52.5°	60.2	59.2	61.6	58.3	51.1	45.9	38.2	25.8	18.1	15.3	9.6
55°	24.4	23.4	24.4	22.9	21.5	20.1	17.7	13.9	11.5	9.6	5.3
57.5°	11.0	11.0	11.5	11.0	11.0	10.0	9.1	10.5	8.1	5.3	3.3
60°	5.3	5.3	5.7	5.7	5.7	5.3	5.3	5.7	4.8	3.3	2.4
62.5°	2.4	2.4	2.9	2.9	2.9	2.9	2.9	3.3	2.4	1.9	1.4
65°	1.4	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
67.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.4
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.4
80°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0
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°	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6
2.5°	106.5	105.1	102.2	100.8	98.9	97.4	96.5	94.6	92.7	91.2	90.3
5°	125.1	119.9	113.7	108.9	105.1	102.7	98.9	95.5	91.7	88.8	86.4
7.5°	152.4	139.5	125.6	116.1	110.8	106.0	99.3	93.6	88.4	84.5	81.2
10°	194.9	167.2	142.8	124.2	115.1	108.4	97.9	89.8	83.1	77.9	74.5
12.5°	265.6	208.7	165.7	134.2	120.4	110.3	95.5	84.5	76.4	71.2	66.9
15°	362.5	269.9	197.3	146.1	126.6	112.2	91.7	78.3	69.3	63.0	59.2
17.5°	453.7	333.9	233.1	160.5	132.8	113.2	86.4	70.2	60.7	54.9	51.1
20°	511.0	375.4	257.0	168.6	134.7	110.3	79.3	61.6	52.1	46.8	43.0
22.5°	524.4	380.2	255.0	161.0	126.6	101.7	69.3	53.0	43.9	39.2	35.8
25°	504.8	353.4	228.3	139.0	107.9	85.5	57.8	43.0	36.3	32.0	29.6
27.5°	455.6	300.9	180.5	104.6	80.7	63.0	43.9	33.4	29.1	25.8	24.4
30°	367.3	211.6	113.2	65.0	51.6	41.6	31.5	25.8	22.4	21.0	19.6
32.5°	222.6	108.9	59.7	38.7	32.5	28.2	22.9	19.1	17.2	16.2	15.8
35°	106.0	57.3	36.8	26.3	22.9	20.1	16.7	14.3	13.4	12.9	12.9
37.5°	60.2	37.3	24.8	17.7	15.8	13.9	12.4	11.0	10.5	10.5	10.5
40°	38.2	23.9	16.2	12.9	11.5	10.5	9.6	8.6	8.6	8.6	8.6
42.5°	24.8	17.2	12.4	9.6	8.6	8.1	7.2	6.7	6.7	6.7	7.2
45°	19.6	14.3	10.0	7.6	6.7	6.2	5.7	5.3	5.3	5.3	5.7
47.5°	16.7	10.0	6.7	5.3	4.3	4.3	3.8	3.8	3.8	4.3	4.8
50°	10.0	6.2	4.3	3.3	2.9	2.9	2.9	2.9	2.9	3.3	3.8
52.5°	5.7	3.8	2.9	2.4	1.9	1.9	1.9	1.9	2.4	2.9	2.9
55°	3.8	2.9	1.9	1.9	1.4	1.4	1.4	1.9	1.9	2.4	2.9
57.5°	2.4	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.9	2.4	2.4
60°	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	2.4
62.5°	1.4	1.4	1.9	1.4	1.4	1.4	1.4	1.4	1.9	1.9	2.4
65°	1.4	1.4	1.9	1.9	1.4	1.4	1.4	1.4	1.4	1.9	2.4
67.5°	1.4	1.4	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.9	1.9
70°	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.9	1.9
72.5°	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.9	1.9
75°	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.9
77.5°	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.9
80°	1.4	1.4	1.4	1.9	1.4	1.9	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
87.5°	1.4	1.4	1.4	1.4	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	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°	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6
2.5°	88.8	87.9	86.4	86.0	86.4	86.0	83.6	83.1	82.1	82.1	82.1
5°	84.1	82.6	80.7	79.8	79.8	78.8	76.4	75.9	74.5	74.5	74.0
7.5°	78.3	76.4	74.0	73.1	73.1	72.1	69.7	68.8	67.8	67.8	67.3
10°	71.6	69.3	66.9	66.4	65.9	64.5	63.0	62.6	61.1	61.6	61.1
12.5°	64.0	62.1	60.2	59.2	59.2	57.8	56.8	56.4	55.9	55.9	55.9
15°	56.8	54.4	52.5	52.1	52.1	51.6	50.6	50.6	49.7	50.6	50.6
17.5°	48.7	46.8	46.3	45.4	45.9	45.4	44.4	44.9	44.9	45.4	45.9
20°	41.1	39.6	39.2	38.7	39.2	39.2	38.7	39.2	39.6	41.1	42.0
22.5°	34.4	33.4	33.4	33.0	33.4	33.9	33.4	34.4	35.3	36.3	37.7
25°	28.7	28.2	28.2	28.2	28.7	29.1	29.6	30.6	31.0	32.5	33.4
27.5°	23.4	23.4	23.4	23.9	24.4	24.8	25.3	26.7	27.2	28.7	29.6
30°	19.6	19.1	19.6	20.1	20.5	21.5	22.0	22.9	23.4	24.8	25.8
32.5°	15.8	16.2	16.7	17.2	17.7	18.1	18.6	19.6	20.5	21.5	22.4
35°	13.4	13.4	13.9	14.3	14.8	15.8	16.2	16.7	17.7	18.6	19.1
37.5°	11.0	11.5	11.9	12.4	12.9	13.4	13.9	14.3	14.8	15.8	16.7
40°	9.1	9.6	10.0	10.5	10.5	11.5	11.5	12.4	12.9	13.9	14.8
42.5°	7.6	8.1	8.6	9.1	9.1	9.6	10.0	10.5	11.0	11.9	12.9
45°	6.2	6.7	7.2	7.6	7.6	8.1	8.6	9.1	9.6	10.5	11.0
47.5°	5.3	5.7	6.2	6.7	6.7	7.2	7.6	8.1	8.1	9.1	9.6
50°	4.3	4.8	5.3	5.7	5.7	6.2	6.7	7.2	7.2	7.6	8.1
52.5°	3.3	3.8	4.8	4.8	5.3	5.7	5.7	6.2	6.2	6.7	7.2
55°	3.3	3.8	4.3	4.3	4.8	5.3	5.3	5.7	5.7	5.7	6.2
57.5°	2.9	3.3	3.8	4.3	4.3	4.8	4.8	4.8	4.8	5.3	5.3
60°	2.9	3.3	3.3	3.8	3.8	4.3	4.3	4.3	4.3	4.8	4.8
62.5°	2.9	2.9	3.3	3.3	3.8	3.8	3.8	4.3	4.3	4.3	4.3
65°	2.4	2.9	3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
67.5°	2.4	2.9	2.9	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
70°	2.4	2.4	2.9	2.9	2.9	3.3	3.3	3.3	2.9	3.3	2.9
72.5°	1.9	2.4	2.4	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
75°	1.9	2.4	2.4	2.4	2.4	2.9	2.9	2.4	2.4	2.4	2.4
77.5°	1.9	1.9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.9
80°	1.9	1.9	1.9	1.9	2.4	2.4	1.9	1.9	1.9	1.9	1.9
82.5°	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4
85°	1.4	1.4	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.4	1.0
87.5°	1.4	1.4	1.4	1.9	1.4	1.4	1.4	1.4	1.0	1.0	1.0
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: P182653

CATALOG NUMBER: LDSQA4A09940D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	93.6	93.6	93.6	93.6	93.6	93.6	93.6	93.6
2.5°	80.7	80.2	80.7	80.2	80.2	80.7	79.3	80.2
5°	73.1	72.1	72.6	72.1	71.6	72.1	71.2	72.1
7.5°	66.4	65.9	65.9	65.9	65.4	65.9	65.0	65.9
10°	60.7	60.2	60.2	60.2	60.2	60.7	59.7	60.7
12.5°	54.9	54.9	55.4	54.9	55.4	55.9	54.9	55.9
15°	50.1	50.6	51.1	51.1	51.6	52.1	51.6	52.5
17.5°	46.3	46.8	47.8	47.8	48.2	49.2	48.7	49.7
20°	42.5	43.0	43.9	43.9	44.4	45.4	44.9	45.9
22.5°	38.2	39.2	39.6	40.1	40.6	41.6	41.1	42.0
25°	33.9	35.3	35.8	36.3	36.8	37.7	37.7	38.7
27.5°	30.6	31.5	32.0	32.5	33.4	34.4	34.4	34.9
30°	26.7	27.7	28.7	29.1	29.6	30.6	30.6	31.5
32.5°	23.4	24.4	24.8	25.3	26.3	27.2	27.7	28.2
35°	20.1	21.5	22.0	22.9	23.4	24.8	24.8	25.3
37.5°	17.7	18.6	19.6	20.1	21.0	22.0	22.0	22.9
40°	15.8	16.7	17.2	17.7	18.6	19.6	19.6	20.1
42.5°	13.4	14.8	15.3	15.8	16.2	17.2	17.7	18.1
45°	11.9	12.4	12.9	13.4	13.9	14.8	14.8	15.3
47.5°	10.0	10.5	11.0	11.5	11.9	12.4	12.9	13.4
50°	8.6	9.1	9.6	9.6	10.0	11.0	11.0	11.5
52.5°	7.2	7.6	8.1	8.1	8.6	9.6	9.6	10.0
55°	6.2	6.7	7.2	7.2	7.6	8.1	8.1	8.6
57.5°	5.7	5.7	6.2	6.2	6.7	6.7	7.2	7.2
60°	4.8	5.3	5.3	5.3	5.7	5.7	5.7	5.7
62.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.8
65°	3.8	3.8	3.8	3.8	3.8	3.8	3.3	3.8
67.5°	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
70°	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4
72.5°	2.4	2.4	2.4	2.4	2.4	1.9	1.9	1.9
75°	2.4	2.4	1.9	1.9	1.9	1.9	1.9	1.4
77.5°	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.4
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.0	1.0
82.5°	1.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0
85°	1.0	1.0	1.0	1.0	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)