

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: P182842

Luminaire Tested: **LDSQA4A09927D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182842
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26804)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A09927D010TE LAR35FL 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 850.0 lumens
Efficiency: N/A
Efficacy: 61.4 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.61 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

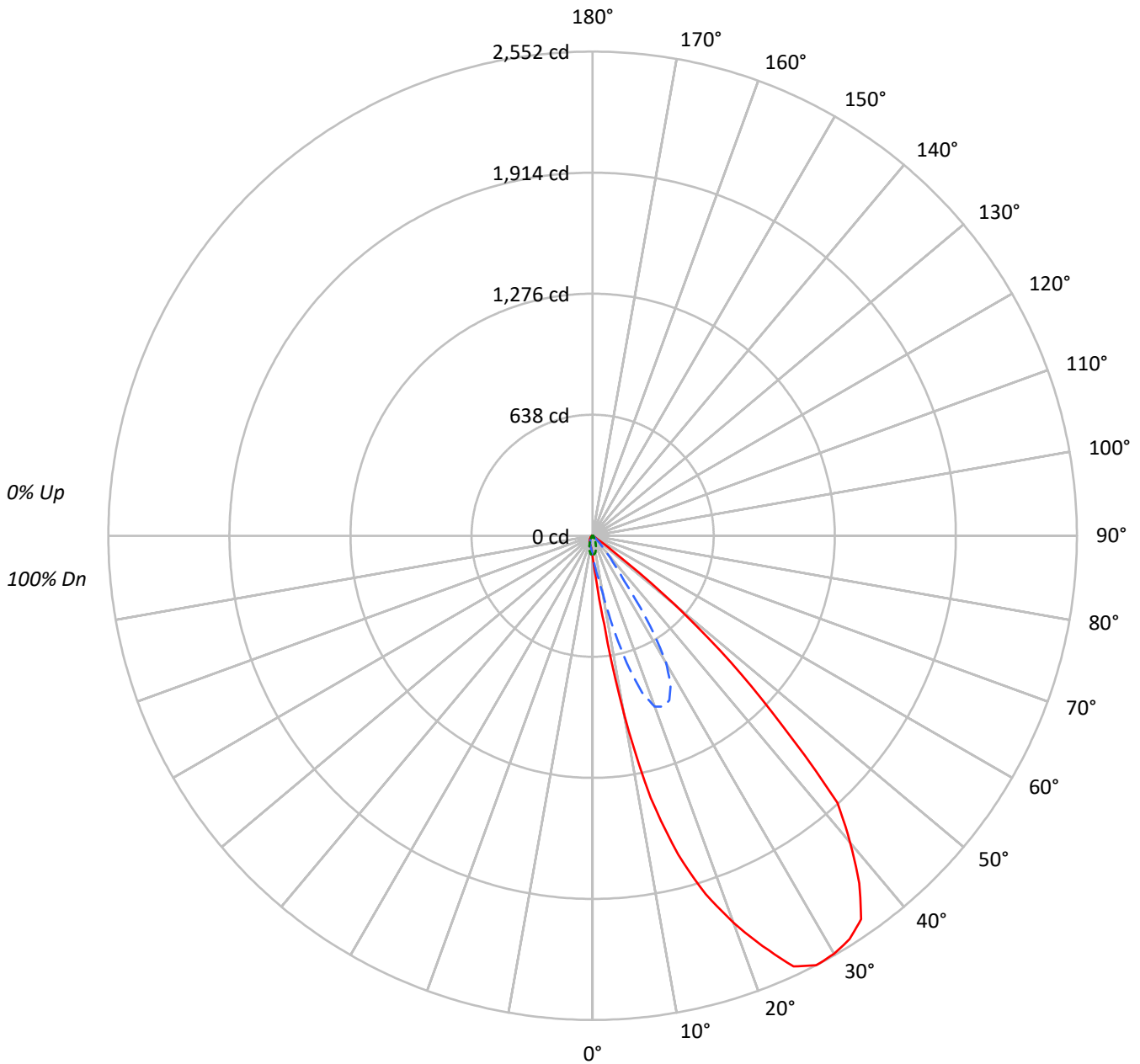
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	104	102	103	101	99	99	97	96	96	94	93	91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67			
5	86	76	69	64	84	75	68	64	73	67	63	71	66	62	70	65	62	60			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54			
7	75	64	57	52	74	63	56	51	62	56	51	60	55	51	59	54	50	49			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	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°	10182	10182	10182
5°	23864	9608	6720
10°	94278	8440	5597
15°	174489	6760	4914
20°	223732	4918	4443
25°	267696	3495	3934
30°	284644	2293	3468
35°	291719	1384	3016
40°	267037	898	2592
45°	192694	630	2124
50°	84127	497	1763
55°	5793	422	1486
60°	1046	407	1221
65°	390	390	871
70°	368	482	595
75°	299	636	636
80°	0	948	725
85°	0	1890	445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	15.3	1.8
10°-20°	120.3	14.2
20°-30°	251.9	29.6
30°-40°	280.4	33.0
40°-50°	160.9	18.9
50°-60°	16.1	1.9
60°-70°	2.5	0.3
70°-80°	1.6	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°	387.5	45.6
0°-40°	667.9	78.6
0°-60°	844.9	99.4
0°-90°	850.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	850.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	105	105	105	105	105	
5°	245	169	99	72	69	45
15°	1740	695	67	47	49	492
25°	2504	956	33	29	37	1134
35°	2467	292	12	17	26	1506
45°	1406	35	5	9	16	1074
55°	34	5	2	5	9	102
65°	2	1	2	3	4	2
75°	1	1	2	2	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°	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
2.5°	157.0	153.7	150.3	148.2	146.1	149.1	147.0	146.1	140.3	137.3	134.8
5°	245.4	239.1	229.9	222.3	214.8	216.5	210.6	203.5	188.8	178.4	169.2
7.5°	473.6	458.1	429.6	402.0	374.3	369.3	350.9	319.1	278.0	247.0	220.2
10°	958.4	911.6	859.2	802.7	736.5	718.1	672.5	586.2	492.0	384.4	306.5
12.5°	1414.9	1393.5	1331.9	1258.7	1187.1	1143.1	1095.8	953.4	803.9	630.6	485.7
15°	1739.8	1726.8	1672.8	1606.2	1529.2	1500.7	1442.9	1301.0	1112.1	904.9	694.7
17.5°	1980.5	1958.3	1901.8	1829.4	1738.1	1713.8	1644.7	1503.6	1307.7	1099.6	866.3
20°	2170.2	2156.4	2083.1	1996.0	1886.7	1857.4	1776.6	1629.7	1416.5	1195.4	958.0
22.5°	2340.6	2317.2	2227.2	2123.3	1998.5	1967.1	1877.1	1715.9	1486.9	1240.7	974.4
25°	2504.4	2468.8	2359.5	2223.4	2076.8	2034.1	1935.3	1764.5	1512.8	1244.4	955.9
27.5°	2552.1	2534.1	2433.2	2274.9	2105.3	2057.2	1954.2	1775.4	1503.2	1210.1	889.8
30°	2544.6	2529.5	2445.3	2279.9	2100.3	2049.6	1945.0	1741.9	1447.1	1120.5	773.0
32.5°	2520.7	2514.8	2413.1	2236.4	2053.4	1998.1	1885.1	1658.5	1342.0	984.0	564.9
35°	2466.7	2443.6	2316.8	2150.5	1974.7	1914.0	1786.3	1539.2	1203.4	716.4	291.8
37.5°	2308.4	2290.4	2190.3	2044.6	1873.3	1795.5	1660.6	1385.1	931.7	407.4	174.6
40°	2111.6	2102.8	2024.1	1893.9	1710.9	1623.0	1476.4	1133.5	568.6	231.6	115.1
42.5°	1909.8	1907.3	1823.1	1687.0	1488.5	1387.6	1235.6	764.6	302.3	139.9	66.6
45°	1406.5	1421.6	1362.9	1281.3	1129.7	1056.4	859.2	394.0	174.2	77.5	35.2
47.5°	986.5	969.8	865.9	723.1	584.5	494.9	374.3	186.3	93.0	40.6	20.1
50°	558.2	561.1	467.3	378.1	247.9	196.4	149.1	93.8	44.8	21.4	12.1
52.5°	145.7	152.4	131.5	113.1	96.3	78.3	63.2	40.6	21.4	12.6	8.0
55°	34.3	35.6	33.1	31.0	29.3	26.0	23.0	17.6	11.7	8.0	5.0
57.5°	12.1	12.6	12.1	12.1	11.7	11.3	10.5	9.2	7.1	5.0	3.3
60°	5.4	5.9	5.4	5.9	5.9	5.9	5.9	5.9	4.2	2.9	2.1
62.5°	2.5	2.5	2.5	2.5	2.9	2.9	3.3	3.3	2.5	2.1	1.7
65°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.3
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8
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°	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
2.5°	130.2	129.8	125.2	121.8	120.2	117.7	114.7	110.5	105.9	101.7	100.1
5°	158.3	152.8	143.2	135.2	131.5	127.7	121.0	113.5	106.4	98.8	95.0
7.5°	194.7	178.8	160.0	145.3	139.0	132.7	123.1	112.6	103.0	93.0	87.5
10°	244.5	207.7	175.0	151.6	142.4	134.0	120.2	107.2	96.7	85.8	78.7
12.5°	349.6	258.3	190.9	154.5	142.4	131.5	114.7	99.7	87.9	76.6	69.9
15°	503.7	348.8	225.7	157.4	139.4	125.6	106.4	90.0	77.5	67.4	61.1
17.5°	628.1	432.1	268.8	165.0	135.7	117.7	95.5	78.3	66.6	57.4	52.3
20°	690.9	467.3	288.5	166.2	126.5	105.1	82.5	66.2	55.7	47.7	43.5
22.5°	689.6	456.0	270.9	145.7	111.0	90.9	69.5	54.4	46.1	39.8	36.4
25°	646.1	403.6	226.1	116.4	89.6	75.4	56.5	44.0	37.3	32.7	29.7
27.5°	564.4	327.9	168.7	86.3	69.9	59.5	44.0	35.2	29.7	26.4	24.3
30°	443.0	219.4	106.4	64.1	53.2	44.8	33.9	27.2	23.4	20.5	19.3
32.5°	244.1	114.3	71.6	46.9	38.9	32.7	25.1	19.7	17.2	15.1	14.7
35°	134.8	80.8	51.1	31.4	26.0	22.2	17.2	14.2	12.6	11.7	11.7
37.5°	95.5	51.9	30.6	19.7	16.7	14.7	11.7	10.0	9.6	9.2	9.2
40°	57.4	30.6	18.4	13.0	11.3	10.0	8.8	7.5	7.5	7.1	7.5
42.5°	31.4	18.4	12.6	9.2	8.0	7.5	6.3	5.9	5.9	5.9	6.3
45°	18.8	12.1	8.8	6.7	5.9	5.0	4.6	4.2	4.6	4.6	5.0
47.5°	12.1	8.8	5.9	4.2	3.8	3.3	2.9	3.3	3.3	3.8	4.2
50°	8.4	5.4	3.8	2.5	2.5	2.1	2.5	2.5	2.9	3.3	3.8
52.5°	5.4	3.8	2.5	2.1	1.7	1.7	1.7	2.1	2.5	2.9	3.3
55°	3.3	2.5	2.1	1.7	1.7	1.7	1.7	1.7	2.1	2.5	2.9
57.5°	2.5	2.1	1.7	1.3	1.3	1.3	1.7	1.7	2.1	2.1	2.5
60°	1.7	1.7	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1	2.5
62.5°	1.7	1.7	1.3	1.3	1.3	1.3	1.7	1.7	1.7	2.1	2.1
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	2.1
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
77.5°	0.8	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
82.5°	0.8	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
85°	0.8	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
87.5°	0.8	1.3	1.3	1.3	1.3	1.3	1.3	1.3	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°	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
2.5°	98.0	95.0	92.5	93.4	91.7	88.8	87.9	85.8	83.3	82.9	82.9
5°	90.9	86.3	82.5	82.1	80.4	77.0	76.2	74.1	72.0	71.6	71.2
7.5°	82.1	77.0	73.7	72.9	71.6	68.7	68.3	66.2	64.9	64.1	64.1
10°	73.3	68.7	65.7	65.3	64.5	62.0	61.6	59.9	58.6	58.2	57.8
12.5°	64.9	61.1	58.6	58.2	57.4	55.3	54.9	53.6	52.8	52.3	52.3
15°	56.9	53.6	51.5	51.1	50.7	48.6	48.6	47.7	47.3	47.3	47.7
17.5°	49.0	46.1	44.4	44.0	44.0	42.3	42.7	42.3	42.3	42.3	43.1
20°	41.0	38.5	37.3	37.7	36.8	36.4	36.8	36.8	36.8	37.7	38.9
22.5°	34.3	32.2	31.0	31.4	31.4	31.0	31.4	31.8	32.7	33.9	35.2
25°	28.1	26.4	26.0	26.4	26.4	26.4	27.2	28.1	28.9	30.1	31.4
27.5°	22.6	21.4	21.4	21.8	22.2	22.2	23.4	24.3	25.5	26.8	28.1
30°	18.0	17.6	17.6	18.4	18.4	18.8	20.5	21.4	22.2	23.4	24.7
32.5°	14.2	14.2	14.7	15.5	15.5	16.3	17.6	18.4	19.3	20.5	21.8
35°	11.7	12.1	12.6	13.0	13.4	13.8	15.1	15.9	16.7	18.0	18.8
37.5°	9.6	10.0	10.5	11.3	11.3	11.7	13.0	13.8	14.2	15.5	16.7
40°	8.0	8.4	8.8	9.6	9.6	10.0	11.3	11.7	12.1	13.4	14.7
42.5°	6.7	7.1	7.5	8.0	8.4	8.8	9.6	10.0	10.9	11.7	12.6
45°	5.4	5.9	6.3	6.7	7.1	7.5	8.0	8.8	9.2	10.0	10.9
47.5°	4.6	5.0	5.4	5.9	6.3	6.3	7.1	7.5	8.0	8.8	9.6
50°	4.2	4.6	5.0	5.0	5.4	5.9	6.3	6.7	7.1	7.5	8.4
52.5°	3.3	3.8	4.2	4.6	4.6	5.0	5.4	5.9	6.3	6.7	7.1
55°	3.3	3.3	3.8	4.2	4.2	4.6	5.0	5.4	5.4	5.9	6.3
57.5°	2.9	3.3	3.3	3.8	3.8	4.2	4.6	4.6	5.0	5.0	5.4
60°	2.5	2.9	3.3	3.3	3.3	3.8	3.8	4.2	4.2	4.6	4.6
62.5°	2.5	2.9	2.9	3.3	3.3	3.3	3.8	3.8	3.8	4.2	4.2
65°	2.5	2.5	2.9	2.9	2.9	2.9	3.3	3.3	3.3	3.8	3.8
67.5°	2.1	2.5	2.5	2.5	2.9	2.9	2.9	2.9	2.9	3.3	3.3
70°	2.1	2.1	2.5	2.5	2.5	2.5	2.5	2.9	2.9	2.9	2.9
72.5°	2.1	2.1	2.1	2.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5
75°	1.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	1.7	1.7	1.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	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	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.8	0.8	0.8
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: LDSQA4A09927D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
2.5°	81.2	80.4	80.0	81.2	79.6	80.4	80.0	80.4
5°	69.9	69.1	68.7	69.9	68.3	69.1	68.3	69.1
7.5°	62.8	62.4	62.0	62.8	61.6	62.4	62.0	62.4
10°	56.9	56.5	56.1	57.4	56.1	56.9	56.5	56.9
12.5°	51.9	51.9	51.5	52.3	51.5	52.3	51.9	52.3
15°	47.3	47.7	47.3	48.2	47.7	48.6	48.2	49.0
17.5°	43.5	44.0	44.0	45.2	44.8	46.1	45.6	46.1
20°	39.8	40.2	40.6	41.5	41.5	42.7	42.3	43.1
22.5°	36.0	36.8	36.8	38.1	38.1	39.4	39.4	39.8
25°	32.2	33.5	33.9	34.8	35.2	36.4	36.4	36.8
27.5°	29.3	30.1	30.6	31.8	32.2	33.5	33.5	34.3
30°	26.0	27.2	27.6	28.5	28.9	30.1	30.1	31.0
32.5°	23.0	23.9	24.7	25.5	26.0	27.2	27.2	28.1
35°	20.1	21.4	21.8	22.6	23.4	24.7	24.7	25.5
37.5°	17.6	18.8	19.3	20.1	20.9	22.2	22.2	23.0
40°	15.5	16.7	17.2	18.0	18.4	20.1	20.1	20.5
42.5°	13.8	14.7	15.1	15.9	16.3	17.2	17.2	18.0
45°	11.7	12.6	13.0	13.4	14.2	15.1	15.1	15.5
47.5°	10.0	10.9	11.3	11.7	12.1	13.0	13.0	13.8
50°	8.8	9.2	9.6	10.0	10.5	11.3	11.3	11.7
52.5°	7.5	8.0	8.4	8.8	9.2	9.6	10.0	10.5
55°	6.7	7.1	7.1	7.5	8.0	8.4	8.4	8.8
57.5°	5.9	6.3	6.3	6.3	6.7	7.1	7.1	7.5
60°	5.0	5.4	5.4	5.4	5.9	5.9	5.9	6.3
62.5°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
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	2.9	2.9	2.9	2.9	2.9
70°	2.9	2.9	2.9	2.5	2.5	2.5	2.1	2.1
72.5°	2.5	2.5	2.5	2.1	2.1	2.1	1.7	1.7
75°	2.1	2.1	2.1	2.1	1.7	1.7	1.7	1.7
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3
80°	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	0.8	0.8	0.8	0.8
85°	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.4
87.5°	0.8	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)