

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: P182820

Luminaire Tested: **LDSQA4A13935D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182820
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: LDSQA4A13935D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1304.8 lumens
Efficiency: N/A
Efficacy: 58.6 lumens/watt
Spacing Criteria (0/90/45): 2.37 / 0.61 / 1.19
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

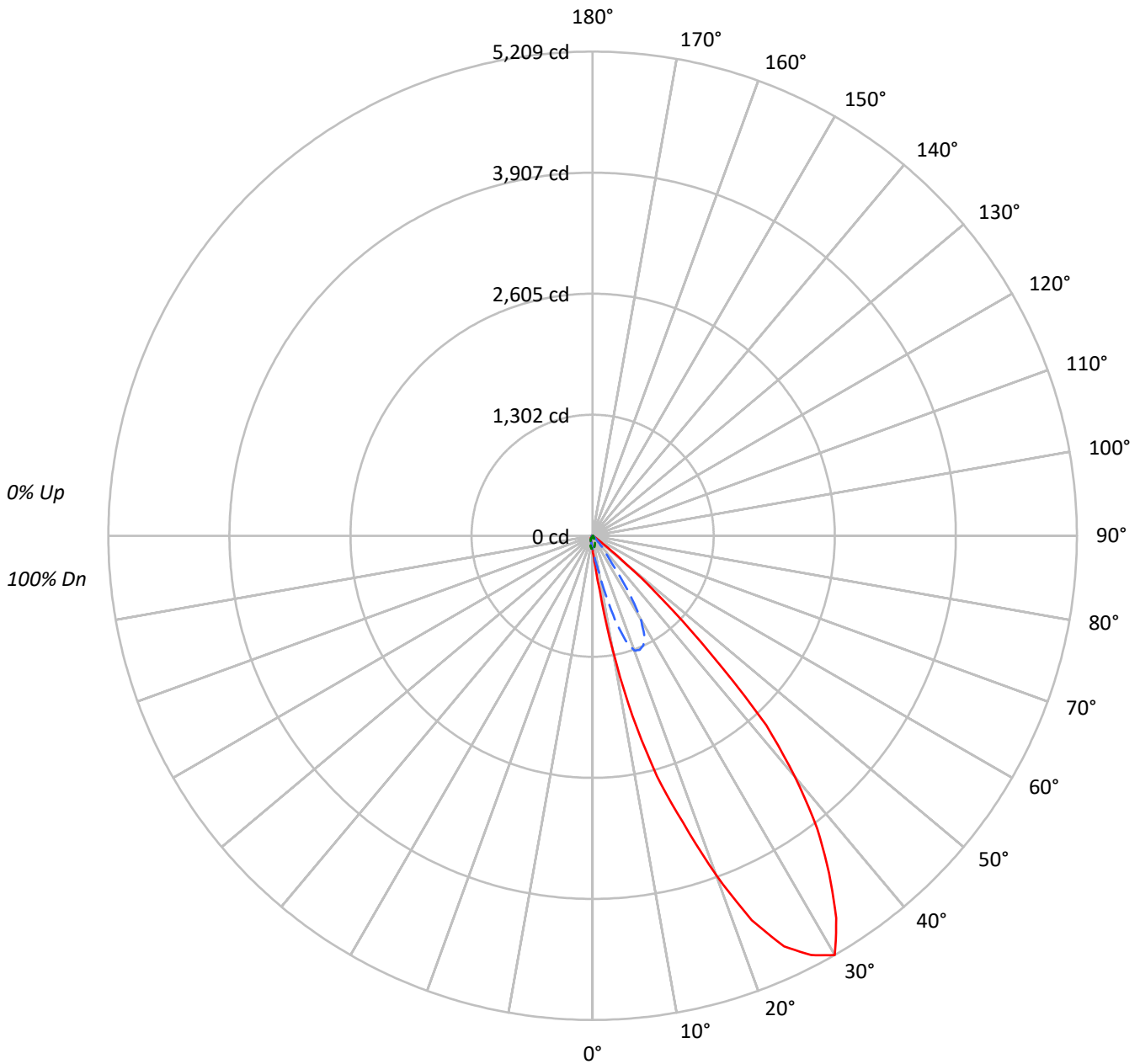
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	14086	14086	14086
5°	31537	13255	9491
10°	123661	11598	7476
15°	268454	9397	6509
20°	400494	6959	5876
25°	520908	4906	5109
30°	582734	3300	4474
35°	524426	1940	3796
40°	427985	1328	3313
45°	245741	904	2699
50°	71874	693	2276
55°	8293	557	1875
60°	1783	639	1531
65°	596	596	1054
70°	566	736	736
75°	487	973	749
80°	0	1450	725
85°	0	2890	778



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	20.8	1.6
10°-20°	178.6	13.7
20°-30°	426.1	32.7
30°-40°	449.7	34.5
40°-50°	203.9	15.6
50°-60°	17.9	1.4
60°-70°	3.7	0.3
70°-80°	2.5	0.2
80°-90°	1.5	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°	625.5	47.9
0°-40°	1075.2	82.4
0°-60°	1297.0	99.4
0°-90°	1304.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1304.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	145	145	145	145	145	
5°	324	238	136	105	98	58
15°	2677	941	94	64	65	779
25°	4873	1296	46	39	48	2214
35°	4434	358	16	22	32	2738
45°	1794	50	7	12	20	1422
55°	49	8	3	7	11	98
65°	3	3	3	5	5	3
75°	1	1	3	3	2	1
85°	0	1	3	2	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°	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4
2.5°	216.2	217.5	211.6	212.3	206.4	209.0	207.0	201.8	197.8	191.3	188.7
5°	324.3	326.2	313.1	309.2	295.5	295.5	289.6	275.8	263.4	248.3	237.8
7.5°	592.9	600.7	561.4	531.9	488.7	478.2	457.9	410.7	372.1	332.8	303.3
10°	1257.1	1242.7	1161.5	1094.7	983.3	942.0	887.0	751.4	626.9	503.1	406.2
12.5°	1982.3	2028.8	1872.3	1817.9	1641.7	1604.3	1487.1	1265.7	1055.4	836.6	642.7
15°	2676.7	2690.5	2553.6	2465.1	2250.3	2201.8	2057.7	1797.6	1514.6	1209.3	941.4
17.5°	3234.2	3289.3	3088.1	2993.2	2714.1	2636.1	2466.5	2150.0	1834.9	1501.5	1183.8
20°	3884.8	3899.2	3660.7	3477.9	3113.0	2994.5	2791.4	2399.0	2023.6	1643.0	1314.8
22.5°	4476.3	4473.0	4166.4	3908.3	3446.5	3305.0	3054.1	2589.0	2152.7	1705.9	1327.2
25°	4873.3	4883.8	4555.6	4250.3	3683.6	3492.3	3209.3	2687.9	2196.6	1703.9	1295.8
27.5°	5084.9	5074.4	4722.6	4396.4	3770.8	3556.5	3249.3	2691.2	2156.6	1637.1	1201.5
30°	5209.4	5069.2	4693.8	4355.1	3711.8	3491.7	3179.2	2587.7	2023.6	1487.7	1033.1
32.5°	4876.6	4822.2	4495.3	4135.7	3508.7	3290.6	2982.0	2367.5	1812.7	1259.1	740.3
35°	4434.4	4436.3	4117.3	3781.2	3190.3	3000.4	2682.0	2099.6	1555.2	875.2	357.7
37.5°	3970.6	3977.1	3673.8	3361.3	2835.3	2635.5	2337.4	1794.3	1118.9	445.5	215.5
40°	3384.3	3398.0	3136.6	2885.7	2400.3	2207.7	1941.7	1358.0	625.6	248.9	146.1
42.5°	2765.2	2782.2	2550.3	2327.6	1914.9	1756.3	1520.5	841.2	310.5	161.2	85.8
45°	1793.7	1842.8	1670.5	1576.8	1337.7	1243.4	992.5	429.1	187.4	94.3	50.4
47.5°	1026.5	1027.2	881.8	706.2	579.1	503.8	393.7	195.2	109.4	53.1	30.8
50°	476.9	488.7	387.2	322.3	230.6	195.2	160.5	105.5	57.6	30.8	19.0
52.5°	138.9	146.7	133.0	120.5	102.2	91.1	78.0	51.8	30.1	18.3	11.8
55°	49.1	52.4	49.1	45.9	41.3	37.3	33.4	24.9	17.0	11.1	7.9
57.5°	20.3	21.0	20.3	19.7	18.3	18.3	16.4	13.8	10.5	7.2	5.2
60°	9.2	9.8	9.2	9.8	9.2	9.2	9.2	9.8	6.6	4.6	3.9
62.5°	3.9	4.6	4.6	4.6	4.6	5.2	5.2	4.6	3.9	3.3	2.6
65°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
70°	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.3	2.0	2.0	2.0
72.5°	2.0	2.0	2.0	2.0	1.3	1.3	1.3	1.3	1.3	2.0	2.0
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	1.3	1.3
80°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3
82.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3
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°	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4
2.5°	185.4	179.5	170.3	164.4	161.8	157.9	155.3	148.7	146.1	140.8	138.9
5°	228.0	216.2	202.4	191.3	184.1	176.2	164.4	151.3	144.8	136.3	131.7
7.5°	276.5	250.9	226.7	207.0	197.8	187.4	172.3	152.0	139.5	128.4	121.8
10°	338.0	285.6	247.6	216.2	202.4	188.7	170.3	146.7	131.0	117.9	110.7
12.5°	482.2	344.6	266.6	221.4	203.7	186.7	163.8	139.5	121.2	106.1	98.3
15°	693.8	481.5	317.7	226.0	199.2	178.2	152.0	127.7	108.7	93.7	85.8
17.5°	881.1	613.8	388.5	243.0	197.8	168.4	137.6	112.7	94.3	79.9	73.4
20°	983.3	683.3	435.6	253.5	191.9	153.3	121.2	97.6	79.9	67.5	61.6
22.5°	985.3	679.3	418.6	230.6	169.0	133.0	104.8	82.5	66.8	55.7	51.1
25°	926.3	606.0	349.2	181.5	138.2	112.7	87.8	68.8	54.4	45.9	41.9
27.5°	816.3	492.6	256.8	131.0	108.1	91.1	70.8	55.0	42.6	37.3	34.1
30°	642.0	321.0	150.0	97.6	83.9	70.1	53.7	38.7	33.4	29.5	26.9
32.5°	344.6	155.9	104.8	72.1	59.6	49.1	35.4	28.2	24.2	21.6	21.0
35°	180.2	114.0	70.1	45.9	38.0	32.1	24.2	19.7	17.7	16.4	16.4
37.5°	129.1	71.4	44.5	29.5	24.9	20.3	17.0	14.4	13.1	13.1	13.1
40°	76.6	43.9	26.9	19.0	16.4	14.4	12.4	10.5	10.5	10.5	10.5
42.5°	46.5	27.5	19.0	13.1	11.8	10.5	9.2	8.5	7.9	7.9	8.5
45°	28.8	19.0	12.4	9.8	9.2	7.9	7.2	6.6	6.6	6.6	7.2
47.5°	18.3	13.8	9.2	6.6	5.9	5.2	4.6	4.6	5.2	5.2	5.9
50°	13.8	8.5	5.9	4.6	3.9	3.9	3.3	3.9	3.9	4.6	5.2
52.5°	7.9	5.2	3.9	3.3	3.3	2.6	2.6	3.3	3.3	3.9	4.6
55°	5.2	3.9	3.3	2.6	2.6	2.6	2.6	2.6	3.3	3.3	3.9
57.5°	3.9	3.3	2.6	2.6	2.6	2.0	2.6	2.6	2.6	3.3	3.9
60°	3.3	2.6	2.6	2.6	2.6	2.0	2.0	2.6	2.6	3.3	3.3
62.5°	2.6	2.6	2.6	2.6	2.6	2.0	2.6	2.6	2.6	2.6	3.3
65°	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.3
67.5°	2.0	2.0	2.6	2.6	2.6	2.0	2.6	2.6	2.6	2.6	3.3
70°	2.0	2.0	2.0	2.6	2.6	2.0	2.6	2.6	2.6	2.6	2.6
72.5°	2.0	2.0	2.0	2.6	2.6	2.0	2.6	2.6	2.6	2.6	2.6
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6
77.5°	2.0	2.0	2.0	2.0	2.6	2.0	2.6	2.6	2.6	2.6	2.6
80°	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6
82.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6
85°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6
87.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6
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°	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4
2.5°	133.6	131.7	127.7	127.1	126.4	123.8	121.8	119.9	119.9	117.9	116.6
5°	123.8	120.5	116.0	114.0	113.3	110.1	107.4	105.5	104.8	102.9	100.9
7.5°	113.3	109.4	104.2	102.2	101.5	98.3	95.6	93.7	92.4	90.4	89.1
10°	102.2	97.6	93.0	91.1	90.4	87.1	85.2	83.2	81.9	80.6	79.3
12.5°	90.4	86.5	81.9	79.9	79.3	76.6	74.7	73.4	72.7	71.4	70.8
15°	78.6	74.7	70.8	69.4	68.8	66.8	65.5	64.9	64.2	64.2	63.5
17.5°	66.8	63.5	60.3	59.6	59.0	57.6	57.0	56.3	57.0	57.0	57.6
20°	55.7	53.1	50.4	50.4	49.8	49.1	49.1	49.1	50.4	51.1	52.4
22.5°	45.9	43.9	41.9	41.9	41.9	41.9	41.9	43.2	44.5	45.9	46.5
25°	38.0	36.0	35.4	35.4	35.4	36.0	36.7	38.0	39.3	40.6	41.9
27.5°	30.8	29.5	29.5	29.5	30.1	30.8	31.4	32.8	34.7	36.0	37.3
30°	24.9	24.2	24.2	24.9	25.5	26.2	27.5	28.8	30.1	31.4	32.8
32.5°	19.7	20.3	20.3	21.0	21.6	22.3	23.6	24.9	26.2	27.5	28.2
35°	16.4	16.4	17.0	17.7	18.3	19.0	20.3	21.6	22.3	23.6	24.9
37.5°	13.1	13.8	14.4	15.1	15.7	16.4	17.0	18.3	19.0	20.3	21.6
40°	11.1	11.8	12.4	13.1	13.1	14.4	14.4	15.7	16.4	17.7	19.0
42.5°	9.2	9.8	10.5	11.1	11.1	11.8	12.4	13.1	14.4	15.1	16.4
45°	7.2	7.9	8.5	9.2	9.8	10.5	10.5	11.8	12.4	13.1	14.4
47.5°	6.6	7.2	7.9	7.9	8.5	9.2	9.2	10.5	11.1	11.8	12.4
50°	5.2	5.9	6.6	7.2	7.2	7.9	8.5	9.2	9.8	10.5	10.5
52.5°	4.6	5.2	5.9	5.9	6.6	7.2	7.2	7.9	8.5	8.5	9.2
55°	4.6	5.2	5.2	5.9	5.9	6.6	6.6	7.2	7.2	7.9	7.9
57.5°	3.9	4.6	4.6	5.2	5.2	5.9	5.9	6.6	6.6	6.6	7.2
60°	3.9	3.9	4.6	4.6	5.2	5.2	5.2	5.9	5.9	5.9	6.6
62.5°	3.3	3.9	3.9	4.6	4.6	4.6	5.2	5.2	5.2	5.9	5.9
65°	3.3	3.9	3.9	4.6	4.6	4.6	4.6	4.6	5.2	5.2	5.2
67.5°	3.3	3.3	3.9	3.9	3.9	3.9	4.6	4.6	4.6	4.6	4.6
70°	3.3	3.3	3.3	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
72.5°	2.6	3.3	3.3	3.3	3.3	3.9	3.9	3.9	3.9	3.9	3.3
75°	2.6	2.6	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
77.5°	2.6	2.6	2.6	3.3	3.3	3.3	3.3	3.3	3.3	2.6	2.6
80°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0
82.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0
85°	2.6	2.0	2.6	2.6	2.6	2.0	2.0	2.0	2.0	2.0	1.3
87.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.3
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: LDSQA4A13935D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	145.4	145.4	145.4	145.4	145.4	145.4	145.4	145.4
2.5°	115.3	114.0	114.6	114.6	113.3	112.7	112.7	113.3
5°	99.6	98.3	98.9	98.9	97.6	97.0	97.0	97.6
7.5°	87.8	86.5	87.1	87.1	85.8	85.8	85.8	85.8
10°	78.6	78.0	78.0	78.0	76.6	77.3	76.6	76.0
12.5°	70.1	70.1	70.1	70.1	69.4	70.1	69.4	69.4
15°	63.5	63.5	64.2	64.2	64.2	64.9	64.9	64.9
17.5°	58.3	59.0	59.6	60.3	60.3	60.9	60.9	60.9
20°	53.1	54.4	55.0	55.7	55.7	57.0	56.3	57.0
22.5°	47.8	49.1	49.8	50.4	51.1	51.8	51.8	52.4
25°	43.2	44.5	45.2	45.9	46.5	47.8	47.8	47.8
27.5°	38.7	40.0	40.6	41.9	42.6	43.9	43.9	43.9
30°	34.1	35.4	36.0	36.7	38.0	39.3	39.3	40.0
32.5°	29.5	31.4	32.1	32.8	34.1	35.4	36.0	36.0
35°	26.2	27.5	28.2	29.5	30.1	32.1	32.1	32.1
37.5°	22.9	24.2	25.5	26.2	26.9	28.2	28.8	29.5
40°	20.3	21.6	22.3	22.9	24.2	25.5	26.2	26.2
42.5°	17.7	19.0	19.7	20.3	21.0	22.3	22.3	22.3
45°	15.7	16.4	17.0	17.7	18.3	19.0	19.7	19.7
47.5°	13.1	14.4	14.4	15.1	15.7	17.0	17.0	17.7
50°	11.1	12.4	12.4	13.1	13.8	14.4	15.1	15.1
52.5°	9.8	10.5	11.1	11.1	11.8	12.4	13.1	13.1
55°	8.5	9.2	9.2	9.8	9.8	10.5	11.1	11.1
57.5°	7.2	7.9	8.5	8.5	8.5	9.2	9.2	9.8
60°	6.6	7.2	7.2	7.2	7.2	7.9	7.9	7.9
62.5°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
65°	5.2	5.2	5.2	5.2	4.6	4.6	4.6	4.6
67.5°	4.6	4.6	4.6	4.6	3.9	3.9	3.9	3.9
70°	3.9	3.9	3.9	3.9	3.3	3.3	3.3	2.6
72.5°	3.3	3.3	3.3	3.3	3.3	2.6	2.6	2.6
75°	3.3	2.6	2.6	2.6	2.6	2.6	2.0	2.0
77.5°	2.6	2.6	2.6	2.0	2.0	2.0	2.0	2.0
80°	2.0	2.0	2.0	2.0	2.0	1.3	1.3	1.3
82.5°	2.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3
85°	1.3	1.3	1.3	1.3	0.7	0.7	0.7	0.7
87.5°	1.3	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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)