

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: P182661

Luminaire Tested: **LDSQA4A13940D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182661
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: LDSQA4A13940D010TE 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: 1284.3 lumens
Efficiency: N/A
Efficacy: 57.7 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

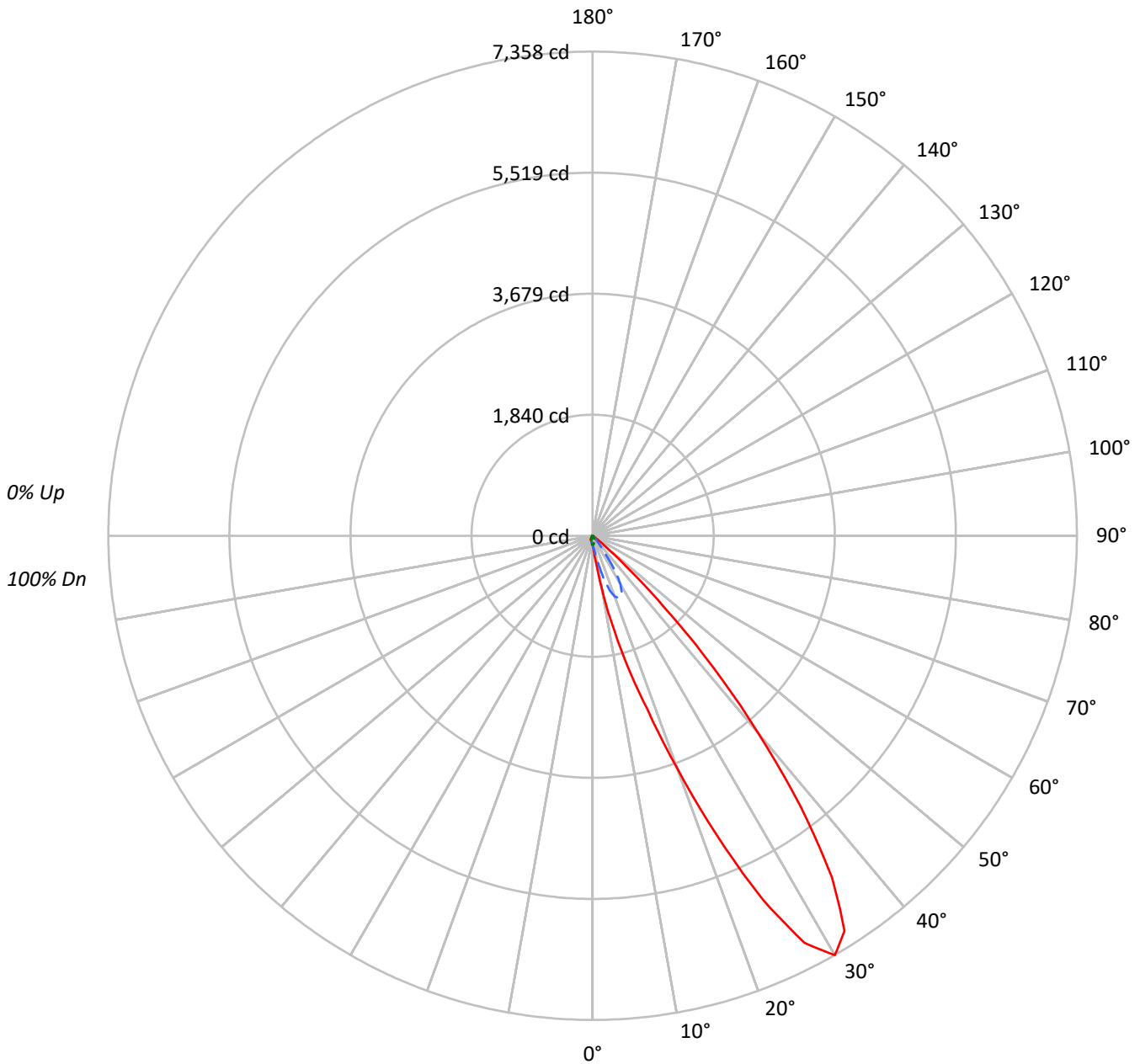
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	13427	13427	13427
5°	25721	12798	10386
10°	84116	11342	8834
15°	206001	9367	7803
20°	388144	7144	7000
25°	649743	5067	6125
30°	823093	3479	5224
35°	749989	2259	4435
40°	493922	1606	3756
45°	213957	1069	3096
50°	37949	754	2562
55°	6097	591	2145
60°	1511	543	1647
65°	481	642	1307
70°	397	793	991
75°	524	786	786
80°	0	1172	781
85°	0	2334	778



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	17.8	1.4
10°-20°	142.9	11.1
20°-30°	430.3	33.5
30°-40°	489.8	38.1
40°-50°	181.1	14.1
50°-60°	14.4	1.1
60°-70°	3.9	0.3
70°-80°	2.7	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°	591.0	46.0
0°-40°	1080.7	84.2
0°-60°	1276.2	99.4
0°-90°	1284.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1284.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	139	139	139	139	139	
5°	264	194	132	110	107	43
15°	2054	694	93	74	78	644
25°	6079	1014	47	46	57	2775
35°	6342	355	19	26	38	3770
45°	1562	42	8	14	23	1322
55°	36	8	4	8	13	59
65°	2	2	3	6	6	3
75°	1	2	2	4	2	1
85°	0	1	2	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°	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6
2.5°	178.2	179.7	178.2	175.4	175.4	171.9	170.5	169.0	165.5	163.4	160.6
5°	264.5	260.3	256.8	248.3	245.4	237.7	232.0	224.2	213.6	204.4	194.5
7.5°	452.7	446.3	432.9	407.4	391.8	372.7	357.9	333.1	301.3	275.1	249.0
10°	855.1	827.5	795.7	738.4	696.7	652.1	616.8	550.3	470.4	404.6	340.9
12.5°	1377.8	1380.0	1320.5	1223.6	1146.5	1068.0	1007.2	884.1	742.7	618.9	496.5
15°	2054.0	2015.1	1953.6	1805.0	1650.8	1537.0	1440.1	1253.3	1053.2	872.1	693.9
17.5°	2766.3	2782.5	2639.0	2396.3	2152.3	1981.9	1835.5	1552.5	1314.9	1090.7	872.8
20°	3765.0	3653.2	3448.1	3054.8	2675.7	2428.9	2211.7	1844.7	1512.9	1227.9	983.2
22.5°	4916.5	4736.1	4318.8	3765.0	3191.4	2849.7	2547.0	2042.0	1638.8	1297.9	1020.6
25°	6078.6	5940.7	5275.8	4448.2	3626.4	3183.6	2791.7	2175.7	1698.9	1314.2	1014.3
27.5°	6975.4	6750.5	5993.0	4914.4	3885.9	3363.2	2905.6	2216.7	1686.2	1274.6	954.2
30°	7358.1	7073.8	6234.2	5020.5	3888.1	3333.5	2849.0	2135.4	1595.7	1174.1	841.0
32.5°	7121.9	6793.7	5947.0	4726.9	3622.1	3101.5	2630.5	1959.2	1445.7	1016.4	631.6
35°	6341.7	6014.9	5230.5	4147.6	3197.7	2742.9	2333.4	1729.4	1231.4	753.3	355.1
37.5°	5193.0	4914.4	4353.5	3476.4	2694.8	2325.6	1984.7	1457.0	917.4	432.2	178.2
40°	3905.7	3709.8	3373.1	2757.1	2181.3	1900.5	1626.1	1116.1	557.4	217.1	101.1
42.5°	2707.6	2580.2	2411.2	2039.9	1682.7	1489.6	1269.6	745.5	286.5	119.5	63.0
45°	1561.7	1481.8	1435.1	1276.7	1137.3	1043.3	848.8	401.7	145.0	71.4	41.7
47.5°	689.6	636.6	613.9	547.5	509.3	483.8	384.1	171.2	77.8	46.0	34.7
50°	251.8	251.8	252.5	222.1	181.8	163.4	128.0	75.7	43.9	36.1	25.5
52.5°	89.1	87.7	91.2	86.3	75.7	67.9	56.6	38.2	26.9	22.6	14.1
55°	36.1	34.7	36.1	34.0	31.8	29.7	26.2	20.5	17.0	14.1	7.8
57.5°	16.3	16.3	17.0	16.3	16.3	14.9	13.4	15.6	12.0	7.8	5.0
60°	7.8	7.8	8.5	8.5	8.5	7.8	7.8	8.5	7.1	5.0	3.5
62.5°	3.5	3.5	4.2	4.2	4.2	4.2	4.2	5.0	3.5	2.8	2.1
65°	2.1	1.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1	2.1
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1
75°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1
77.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	1.4	2.1
80°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4
82.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	1.4
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6
2.5°	157.7	155.6	151.4	149.2	146.4	144.3	142.9	140.0	137.2	135.1	133.7
5°	185.3	177.5	168.3	161.3	155.6	152.1	146.4	141.5	135.8	131.6	128.0
7.5°	225.6	206.5	186.0	171.9	164.1	157.0	147.1	138.6	130.9	125.2	120.2
10°	288.6	247.6	211.5	183.9	170.5	160.6	145.0	133.0	123.1	115.3	110.3
12.5°	393.3	309.1	245.4	198.8	178.2	163.4	141.5	125.2	113.2	105.4	99.0
15°	536.8	399.6	292.1	216.4	187.4	166.2	135.8	116.0	102.6	93.4	87.7
17.5°	671.9	494.4	345.2	237.7	196.6	167.6	128.0	104.0	89.8	81.3	75.7
20°	756.8	555.9	380.5	249.7	199.5	163.4	117.4	91.2	77.1	69.3	63.7
22.5°	776.6	563.0	377.7	238.4	187.4	150.7	102.6	78.5	65.1	58.0	53.0
25°	747.6	523.4	338.1	205.8	159.9	126.6	85.6	63.7	53.8	47.4	43.9
27.5°	674.8	445.6	267.4	154.9	119.5	93.4	65.1	49.5	43.1	38.2	36.1
30°	543.9	313.3	167.6	96.2	76.4	61.5	46.7	38.2	33.2	31.1	29.0
32.5°	329.6	161.3	88.4	57.3	48.1	41.7	34.0	28.3	25.5	24.0	23.3
35°	157.0	84.9	54.5	38.9	34.0	29.7	24.8	21.2	19.8	19.1	19.1
37.5°	89.1	55.2	36.8	26.2	23.3	20.5	18.4	16.3	15.6	15.6	15.6
40°	56.6	35.4	24.0	19.1	17.0	15.6	14.1	12.7	12.7	12.7	12.7
42.5°	36.8	25.5	18.4	14.1	12.7	12.0	10.6	9.9	9.9	9.9	10.6
45°	29.0	21.2	14.9	11.3	9.9	9.2	8.5	7.8	7.8	7.8	8.5
47.5°	24.8	14.9	9.9	7.8	6.4	6.4	5.7	5.7	5.7	6.4	7.1
50°	14.9	9.2	6.4	5.0	4.2	4.2	4.2	4.2	4.2	5.0	5.7
52.5°	8.5	5.7	4.2	3.5	2.8	2.8	2.8	2.8	3.5	4.2	4.2
55°	5.7	4.2	2.8	2.8	2.1	2.1	2.1	2.8	2.8	3.5	4.2
57.5°	3.5	2.8	2.1	2.1	2.1	2.1	2.1	2.1	2.8	3.5	3.5
60°	2.8	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	3.5
62.5°	2.1	2.1	2.8	2.1	2.1	2.1	2.1	2.1	2.8	2.8	3.5
65°	2.1	2.1	2.8	2.8	2.1	2.1	2.1	2.1	2.1	2.8	3.5
67.5°	2.1	2.1	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.8	2.8
70°	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.8	2.8
72.5°	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.8	2.8
75°	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.8
77.5°	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.8
80°	2.1	2.1	2.1	2.8	2.1	2.8	2.1	2.1	2.1	2.1	2.1
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6
2.5°	131.6	130.1	128.0	127.3	128.0	127.3	123.8	123.1	121.7	121.7	121.7
5°	124.5	122.4	119.5	118.1	118.1	116.7	113.2	112.5	110.3	110.3	109.6
7.5°	116.0	113.2	109.6	108.2	108.2	106.8	103.3	101.9	100.4	100.4	99.7
10°	106.1	102.6	99.0	98.3	97.6	95.5	93.4	92.7	90.5	91.2	90.5
12.5°	94.8	91.9	89.1	87.7	87.7	85.6	84.2	83.5	82.8	82.8	82.8
15°	84.2	80.6	77.8	77.1	77.1	76.4	75.0	75.0	73.6	75.0	75.0
17.5°	72.1	69.3	68.6	67.2	67.9	67.2	65.8	66.5	66.5	67.2	67.9
20°	60.8	58.7	58.0	57.3	58.0	58.0	57.3	58.0	58.7	60.8	62.2
22.5°	50.9	49.5	49.5	48.8	49.5	50.2	49.5	50.9	52.3	53.8	55.9
25°	42.4	41.7	41.7	41.7	42.4	43.1	43.9	45.3	46.0	48.1	49.5
27.5°	34.7	34.7	34.7	35.4	36.1	36.8	37.5	39.6	40.3	42.4	43.9
30°	29.0	28.3	29.0	29.7	30.4	31.8	32.5	34.0	34.7	36.8	38.2
32.5°	23.3	24.0	24.8	25.5	26.2	26.9	27.6	29.0	30.4	31.8	33.2
35°	19.8	19.8	20.5	21.2	21.9	23.3	24.0	24.8	26.2	27.6	28.3
37.5°	16.3	17.0	17.7	18.4	19.1	19.8	20.5	21.2	21.9	23.3	24.8
40°	13.4	14.1	14.9	15.6	15.6	17.0	17.0	18.4	19.1	20.5	21.9
42.5°	11.3	12.0	12.7	13.4	13.4	14.1	14.9	15.6	16.3	17.7	19.1
45°	9.2	9.9	10.6	11.3	11.3	12.0	12.7	13.4	14.1	15.6	16.3
47.5°	7.8	8.5	9.2	9.9	9.9	10.6	11.3	12.0	12.0	13.4	14.1
50°	6.4	7.1	7.8	8.5	8.5	9.2	9.9	10.6	10.6	11.3	12.0
52.5°	5.0	5.7	7.1	7.1	7.8	8.5	8.5	9.2	9.2	9.9	10.6
55°	5.0	5.7	6.4	6.4	7.1	7.8	7.8	8.5	8.5	8.5	9.2
57.5°	4.2	5.0	5.7	6.4	6.4	7.1	7.1	7.1	7.1	7.8	7.8
60°	4.2	5.0	5.0	5.7	5.7	6.4	6.4	6.4	6.4	7.1	7.1
62.5°	4.2	4.2	5.0	5.0	5.7	5.7	5.7	6.4	6.4	6.4	6.4
65°	3.5	4.2	5.0	5.0	5.0	5.7	5.7	5.7	5.7	5.7	5.7
67.5°	3.5	4.2	4.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
70°	3.5	3.5	4.2	4.2	4.2	5.0	5.0	5.0	4.2	5.0	4.2
72.5°	2.8	3.5	3.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
75°	2.8	3.5	3.5	3.5	3.5	4.2	4.2	3.5	3.5	3.5	3.5
77.5°	2.8	2.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.8
80°	2.8	2.8	2.8	2.8	3.5	3.5	2.8	2.8	2.8	2.8	2.8
82.5°	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1
85°	2.1	2.1	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1	1.4
87.5°	2.1	2.1	2.1	2.8	2.1	2.1	2.1	2.1	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



TEST NUMBER: P182661

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.6
2.5°	119.5	118.8	119.5	118.8	118.8	119.5	117.4	118.8
5°	108.2	106.8	107.5	106.8	106.1	106.8	105.4	106.8
7.5°	98.3	97.6	97.6	97.6	96.9	97.6	96.2	97.6
10°	89.8	89.1	89.1	89.1	89.1	89.8	88.4	89.8
12.5°	81.3	81.3	82.0	81.3	82.0	82.8	81.3	82.8
15°	74.3	75.0	75.7	75.7	76.4	77.1	76.4	77.8
17.5°	68.6	69.3	70.7	70.7	71.4	72.9	72.1	73.6
20°	63.0	63.7	65.1	65.1	65.8	67.2	66.5	67.9
22.5°	56.6	58.0	58.7	59.4	60.1	61.5	60.8	62.2
25°	50.2	52.3	53.0	53.8	54.5	55.9	55.9	57.3
27.5°	45.3	46.7	47.4	48.1	49.5	50.9	50.9	51.6
30°	39.6	41.0	42.4	43.1	43.9	45.3	45.3	46.7
32.5°	34.7	36.1	36.8	37.5	38.9	40.3	41.0	41.7
35°	29.7	31.8	32.5	34.0	34.7	36.8	36.8	37.5
37.5°	26.2	27.6	29.0	29.7	31.1	32.5	32.5	34.0
40°	23.3	24.8	25.5	26.2	27.6	29.0	29.0	29.7
42.5°	19.8	21.9	22.6	23.3	24.0	25.5	26.2	26.9
45°	17.7	18.4	19.1	19.8	20.5	21.9	21.9	22.6
47.5°	14.9	15.6	16.3	17.0	17.7	18.4	19.1	19.8
50°	12.7	13.4	14.1	14.1	14.9	16.3	16.3	17.0
52.5°	10.6	11.3	12.0	12.0	12.7	14.1	14.1	14.9
55°	9.2	9.9	10.6	10.6	11.3	12.0	12.0	12.7
57.5°	8.5	8.5	9.2	9.2	9.9	9.9	10.6	10.6
60°	7.1	7.8	7.8	7.8	8.5	8.5	8.5	8.5
62.5°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	7.1
65°	5.7	5.7	5.7	5.7	5.7	5.7	5.0	5.7
67.5°	5.0	5.0	5.0	5.0	4.2	4.2	4.2	4.2
70°	4.2	4.2	4.2	4.2	4.2	3.5	3.5	3.5
72.5°	3.5	3.5	3.5	3.5	3.5	2.8	2.8	2.8
75°	3.5	3.5	2.8	2.8	2.8	2.8	2.8	2.1
77.5°	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
80°	2.1	2.1	2.1	2.1	2.1	2.1	1.4	1.4
82.5°	2.1	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	1.4	1.4	1.4	1.4	0.7	0.7	0.7	0.7
87.5°	0.7	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)