

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: P1212216

Luminaire Tested: **LDSQA4A20940D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

**Test Information**

Test Method: LM-41-14
Report Number: P1212216
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: LDSQA4A20940D010TE 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

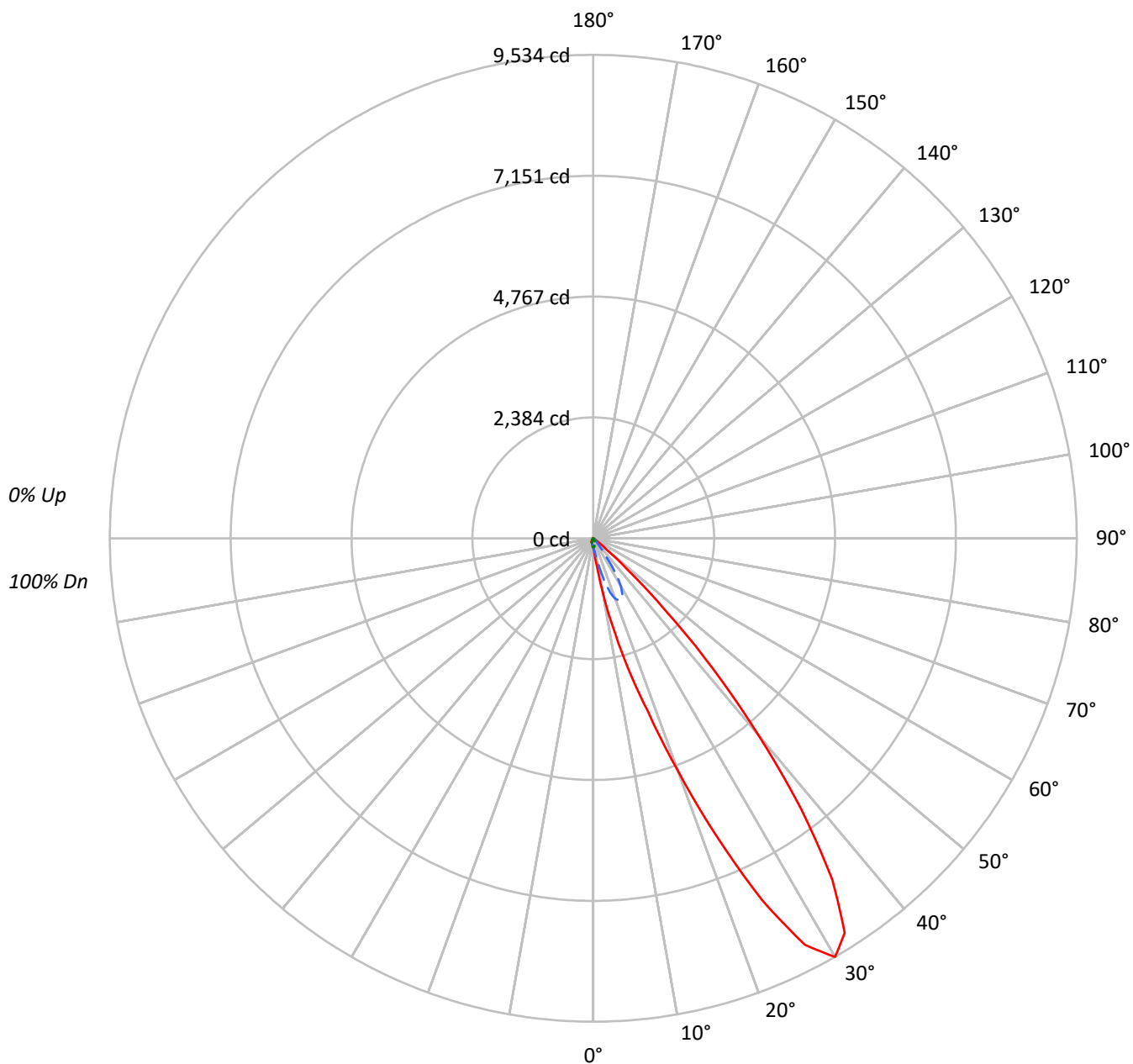
Lumens per Lamp: N/A
Luminaire Lumens: 1664.0 lumens
Efficiency: N/A
Efficacy: 57.8 lumens/watt
Spacing Criteria (0/90/45): 2.28 / 0.64 / 1.15
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 28.8
Input Voltage (V): NR
Input Current (Ain): 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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	112	109	106	104	110	107	105	102	103	101	99		99	98	96		96
2	106	100	95	91	103	98	94	90	95	91	88		92	89	86		89
3	99	91	85	81	97	90	84	80	87	83	79		85	81	77		82
4	92	83	77	72	90	82	76	71	80	75	70		78	73	70		76
5	86	76	69	64	85	75	69	64	73	68	63		72	67	63		70
6	81	70	63	58	79	69	62	57	67	61	57		66	61	57		64
7	75	64	57	52	74	63	57	52	62	56	51		61	55	51		59
8	70	59	52	47	69	58	51	47	57	51	46		56	50	46		55
9	66	54	47	42	65	54	47	42	53	46	42		52	46	42		51
10	62	50	43	38	60	50	43	38	49	42	38		48	42	38		47

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	17399	17399	17399
5°	33336	16580	13459
10°	108994	14696	11450
15°	266919	12135	10110
20°	502907	9258	9072
25°	841846	6563	7931
30°	1066460	4508	6779
35°	971732	2921	5748
40°	639973	2099	4869
45°	277225	1384	4028
50°	49162	980	3301
55°	7887	777	2804
60°	1957	717	2131
65°	619	848	1673
70°	510	1048	1303
75°	674	1011	1011
80°	0	1506	1004
85°	0	3001	1112



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.0	1.4
10°-20°	185.1	11.1
20°-30°	557.5	33.5
30°-40°	634.6	38.1
40°-50°	234.6	14.1
50°-60°	18.6	1.1
60°-70°	5.0	0.3
70°-80°	3.5	0.2
80°-90°	2.0	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°	765.7	46.0
0°-40°	1400.3	84.1
0°-60°	1653.5	99.4
0°-90°	1664.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1664.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	180	180	180	180	180	
5°	343	252	170	143	138	56
15°	2661	899	121	95	101	835
25°	7876	1314	61	60	74	3595
35°	8217	460	25	34	49	4885
45°	2024	54	10	18	29	1713
55°	47	10	5	11	17	77
65°	3	3	4	7	7	4
75°	2	3	3	5	3	1
85°	0	2	3	3	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°	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6
2.5°	231.0	232.7	231.0	227.2	227.2	222.6	220.9	219.0	214.5	211.8	208.0
5°	342.8	337.3	332.7	321.7	318.0	307.9	300.6	290.5	276.7	264.9	252.0
7.5°	586.6	578.2	560.9	527.9	507.8	483.0	463.8	431.6	390.4	356.5	322.6
10°	1108.0	1072.2	1031.0	956.8	902.7	845.0	799.1	713.0	609.4	524.2	441.7
12.5°	1785.3	1788.0	1711.0	1585.4	1485.5	1383.8	1305.0	1145.6	962.2	801.8	643.4
15°	2661.4	2610.9	2531.1	2338.7	2139.0	1991.4	1865.8	1624.0	1364.6	1129.9	899.0
17.5°	3584.2	3605.3	3419.2	3105.0	2788.8	2567.8	2378.2	2011.6	1703.6	1413.1	1130.9
20°	4878.2	4733.4	4467.6	3958.2	3466.9	3147.0	2865.8	2390.0	1960.3	1590.9	1273.9
22.5°	6370.1	6136.4	5595.7	4878.2	4135.0	3692.3	3300.2	2645.8	2123.4	1681.7	1322.5
25°	7875.8	7697.1	6835.7	5763.4	4698.6	4124.9	3617.2	2818.9	2201.3	1702.7	1314.2
27.5°	9037.9	8746.5	7765.0	6367.4	5035.0	4357.7	3764.7	2872.1	2184.8	1651.4	1236.2
30°	9533.7	9165.3	8077.4	6504.9	5037.7	4319.1	3691.4	2766.7	2067.5	1521.3	1089.6
32.5°	9227.6	8802.3	7705.4	6124.6	4693.1	4018.6	3408.2	2538.6	1873.1	1317.0	818.4
35°	8216.7	7793.4	6777.0	5374.0	4143.3	3554.0	3023.3	2240.6	1595.4	976.0	460.1
37.5°	6728.5	6367.4	5640.6	4504.2	3491.6	3013.2	2571.5	1887.8	1188.6	559.9	231.0
40°	5060.6	4806.6	4370.5	3572.3	2826.3	2462.5	2107.0	1446.1	722.2	281.4	131.0
42.5°	3508.2	3343.2	3124.2	2643.0	2180.2	1930.0	1645.0	965.9	371.2	154.9	81.5
45°	2023.5	1919.9	1859.4	1654.1	1473.7	1351.8	1099.7	520.5	187.8	92.6	54.1
47.5°	893.6	824.8	795.5	709.3	659.8	626.8	497.7	221.8	100.8	59.6	45.0
50°	326.2	326.2	327.2	287.8	235.5	211.8	165.9	98.1	56.8	46.7	33.0
52.5°	115.4	113.7	118.2	111.8	98.1	88.0	73.3	49.5	34.9	29.4	18.3
55°	46.7	45.0	46.7	44.0	41.3	38.5	33.9	26.6	21.9	18.3	10.1
57.5°	21.1	21.1	21.9	21.1	21.1	19.2	17.4	20.2	15.6	10.1	6.5
60°	10.1	10.1	11.0	11.0	11.0	10.1	10.1	11.0	9.1	6.5	4.6
62.5°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	6.5	4.6	3.7	2.7
65°	2.7	1.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
67.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7
70°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.7
72.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.7
75°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.7
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.8	1.8	2.7
80°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.8	1.8	1.8
82.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.8	1.8	1.8
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.8	1.8
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.8	1.8
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°	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6
2.5°	204.3	201.7	196.2	193.4	189.7	187.0	185.1	181.4	177.8	175.0	173.1
5°	240.2	230.1	218.1	209.0	201.7	197.1	189.7	183.3	176.0	170.5	165.9
7.5°	292.3	267.6	241.0	222.6	212.6	203.4	190.6	179.6	169.5	162.2	155.8
10°	373.9	320.7	274.1	238.2	220.9	208.0	187.8	172.3	159.4	149.4	143.0
12.5°	509.5	400.5	318.0	257.5	231.0	211.8	183.3	162.2	146.6	136.6	128.3
15°	695.5	517.8	378.5	280.4	242.9	215.4	176.0	150.2	132.9	121.0	113.7
17.5°	870.6	640.6	447.2	307.9	254.8	217.1	165.9	134.7	116.4	105.4	98.1
20°	980.6	720.3	493.0	323.5	258.4	211.8	152.2	118.2	99.8	89.8	82.5
22.5°	1006.2	729.4	489.4	308.9	242.9	195.2	132.9	101.7	84.3	75.2	68.7
25°	968.6	678.2	438.1	266.6	207.0	164.0	110.9	82.5	69.7	61.4	56.8
27.5°	874.3	577.3	346.4	200.7	154.9	121.0	84.3	64.2	55.9	49.5	46.7
30°	704.7	406.0	217.1	124.6	99.0	79.8	60.6	49.5	43.0	40.3	37.5
32.5°	427.0	209.0	114.5	74.2	62.3	54.1	44.0	36.6	33.0	31.2	30.2
35°	203.4	109.9	70.6	50.4	44.0	38.5	32.0	27.4	25.7	24.7	24.7
37.5°	115.4	71.4	47.6	33.9	30.2	26.6	23.8	21.1	20.2	20.2	20.2
40°	73.3	45.8	31.2	24.7	21.9	20.2	18.3	16.6	16.6	16.6	16.6
42.5°	47.6	33.0	23.8	18.3	16.6	15.6	13.8	12.8	12.8	12.8	13.8
45°	37.5	27.4	19.2	14.6	12.8	12.0	11.0	10.1	10.1	10.1	11.0
47.5°	32.0	19.2	12.8	10.1	8.2	8.2	7.3	7.3	7.3	8.2	9.1
50°	19.2	12.0	8.2	6.5	5.5	5.5	5.5	5.5	5.5	6.5	7.3
52.5°	11.0	7.3	5.5	4.6	3.7	3.7	3.7	3.7	4.6	5.5	5.5
55°	7.3	5.5	3.7	3.7	2.7	2.7	2.7	3.7	3.7	4.6	5.5
57.5°	4.6	3.7	2.7	2.7	2.7	2.7	2.7	2.7	3.7	4.6	4.6
60°	3.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.7	3.7	4.6
62.5°	2.7	2.7	3.7	2.7	2.7	2.7	2.7	2.7	3.7	3.7	4.6
65°	2.7	2.7	3.7	3.7	2.7	2.7	2.7	2.7	2.7	3.7	4.6
67.5°	2.7	2.7	3.7	3.7	3.7	3.7	2.7	2.7	2.7	3.7	3.7
70°	2.7	3.7	3.7	3.7	3.7	3.7	3.7	2.7	2.7	3.7	3.7
72.5°	2.7	3.7	3.7	3.7	3.7	3.7	3.7	2.7	2.7	3.7	3.7
75°	2.7	2.7	3.7	3.7	3.7	3.7	3.7	2.7	2.7	2.7	3.7
77.5°	2.7	2.7	3.7	3.7	3.7	3.7	3.7	2.7	2.7	2.7	3.7
80°	2.7	2.7	2.7	3.7	2.7	3.7	2.7	2.7	2.7	2.7	2.7
82.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
85°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
87.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
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°	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6
2.5°	170.5	168.6	165.9	165.0	165.9	165.0	160.4	159.4	157.7	157.7	157.7
5°	161.3	158.5	154.9	153.1	153.1	151.2	146.6	145.7	143.0	143.0	142.1
7.5°	150.2	146.6	142.1	140.2	140.2	138.4	133.8	132.0	130.1	130.1	129.2
10°	137.5	132.9	128.3	127.4	126.5	123.8	121.0	120.0	117.3	118.2	117.3
12.5°	122.8	119.2	115.4	113.7	113.7	110.9	109.1	108.2	107.2	107.2	107.2
15°	109.1	104.5	100.8	99.8	99.8	99.0	97.1	97.1	95.3	97.1	97.1
17.5°	93.5	89.8	89.0	87.0	88.0	87.0	85.3	86.1	86.1	87.0	88.0
20°	78.8	76.0	75.2	74.2	75.2	75.2	74.2	75.2	76.0	78.8	80.6
22.5°	65.9	64.2	64.2	63.2	64.2	65.1	64.2	65.9	67.8	69.7	72.4
25°	55.0	54.1	54.1	54.1	55.0	55.9	56.8	58.6	59.6	62.3	64.2
27.5°	45.0	45.0	45.0	45.8	46.7	47.6	48.6	51.3	52.2	55.0	56.8
30°	37.5	36.6	37.5	38.5	39.4	41.3	42.1	44.0	45.0	47.6	49.5
32.5°	30.2	31.2	32.0	33.0	33.9	34.9	35.8	37.5	39.4	41.3	43.0
35°	25.7	25.7	26.6	27.4	28.4	30.2	31.2	32.0	33.9	35.8	36.6
37.5°	21.1	21.9	22.9	23.8	24.7	25.7	26.6	27.4	28.4	30.2	32.0
40°	17.4	18.3	19.2	20.2	20.2	21.9	21.9	23.8	24.7	26.6	28.4
42.5°	14.6	15.6	16.6	17.4	17.4	18.3	19.2	20.2	21.1	22.9	24.7
45°	12.0	12.8	13.8	14.6	14.6	15.6	16.6	17.4	18.3	20.2	21.1
47.5°	10.1	11.0	12.0	12.8	12.8	13.8	14.6	15.6	15.6	17.4	18.3
50°	8.2	9.1	10.1	11.0	11.0	12.0	12.8	13.8	13.8	14.6	15.6
52.5°	6.5	7.3	9.1	9.1	10.1	11.0	11.0	12.0	12.0	12.8	13.8
55°	6.5	7.3	8.2	8.2	9.1	10.1	10.1	11.0	11.0	11.0	12.0
57.5°	5.5	6.5	7.3	8.2	8.2	9.1	9.1	9.1	9.1	10.1	10.1
60°	5.5	6.5	6.5	7.3	7.3	8.2	8.2	8.2	8.2	9.1	9.1
62.5°	5.5	5.5	6.5	6.5	7.3	7.3	7.3	8.2	8.2	8.2	8.2
65°	4.6	5.5	6.5	6.5	6.5	7.3	7.3	7.3	7.3	7.3	7.3
67.5°	4.6	5.5	5.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
70°	4.6	4.6	5.5	5.5	5.5	6.5	6.5	6.5	5.5	6.5	5.5
72.5°	3.7	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
75°	3.7	4.6	4.6	4.6	4.6	5.5	5.5	4.6	4.6	4.6	4.6
77.5°	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	3.7
80°	3.7	3.7	3.7	3.7	4.6	4.6	3.7	3.7	3.7	3.7	3.7
82.5°	2.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	2.7	2.7	2.7
85°	2.7	2.7	3.7	3.7	3.7	3.7	2.7	2.7	2.7	2.7	1.8
87.5°	2.7	2.7	2.7	3.7	2.7	2.7	2.7	2.7	1.8	1.8	1.8
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: P1212216

CATALOG NUMBER: LDSQA4A20940D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	179.6	179.6	179.6	179.6	179.6	179.6	179.6	179.6
2.5°	154.9	153.9	154.9	153.9	153.9	154.9	152.2	153.9
5°	140.2	138.4	139.3	138.4	137.5	138.4	136.6	138.4
7.5°	127.4	126.5	126.5	126.5	125.5	126.5	124.6	126.5
10°	116.4	115.4	115.4	115.4	115.4	116.4	114.5	116.4
12.5°	105.4	105.4	106.3	105.4	106.3	107.2	105.4	107.2
15°	96.2	97.1	98.1	98.1	99.0	99.8	99.0	100.8
17.5°	89.0	89.8	91.6	91.6	92.6	94.4	93.5	95.3
20°	81.5	82.5	84.3	84.3	85.3	87.0	86.1	88.0
22.5°	73.3	75.2	76.0	77.0	77.9	79.8	78.8	80.6
25°	65.1	67.8	68.7	69.7	70.6	72.4	72.4	74.2
27.5°	58.6	60.6	61.4	62.3	64.2	65.9	65.9	66.9
30°	51.3	53.1	55.0	55.9	56.8	58.6	58.6	60.6
32.5°	45.0	46.7	47.6	48.6	50.4	52.2	53.1	54.1
35°	38.5	41.3	42.1	44.0	45.0	47.6	47.6	48.6
37.5°	33.9	35.8	37.5	38.5	40.3	42.1	42.1	44.0
40°	30.2	32.0	33.0	33.9	35.8	37.5	37.5	38.5
42.5°	25.7	28.4	29.4	30.2	31.2	33.0	33.9	34.9
45°	22.9	23.8	24.7	25.7	26.6	28.4	28.4	29.4
47.5°	19.2	20.2	21.1	21.9	22.9	23.8	24.7	25.7
50°	16.6	17.4	18.3	18.3	19.2	21.1	21.1	21.9
52.5°	13.8	14.6	15.6	15.6	16.6	18.3	18.3	19.2
55°	12.0	12.8	13.8	13.8	14.6	15.6	15.6	16.6
57.5°	11.0	11.0	12.0	12.0	12.8	12.8	13.8	13.8
60°	9.1	10.1	10.1	10.1	11.0	11.0	11.0	11.0
62.5°	8.2	8.2	8.2	8.2	8.2	8.2	8.2	9.1
65°	7.3	7.3	7.3	7.3	7.3	7.3	6.5	7.3
67.5°	6.5	6.5	6.5	6.5	5.5	5.5	5.5	5.5
70°	5.5	5.5	5.5	5.5	5.5	4.6	4.6	4.6
72.5°	4.6	4.6	4.6	4.6	4.6	3.7	3.7	3.7
75°	4.6	4.6	3.7	3.7	3.7	3.7	3.7	2.7
77.5°	3.7	3.7	3.7	3.7	2.7	2.7	2.7	2.7
80°	2.7	2.7	2.7	2.7	2.7	2.7	1.8	1.8
82.5°	2.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8
85°	1.8	1.8	1.8	1.8	1.0	1.0	1.0	1.0
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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Scaled Data Report

Cooper Lighting Solutions Photometric Lab

1121 Highway 74 South

Peachtree City, GA 30269



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Peachtree City, GA 30269

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— 0°-180° - - 45°-225° - - - 90°-270°

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