

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: P1219457

Luminaire Tested: **LDSQA4A15927D010TE 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: P1219457
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: LDSQA4A15927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

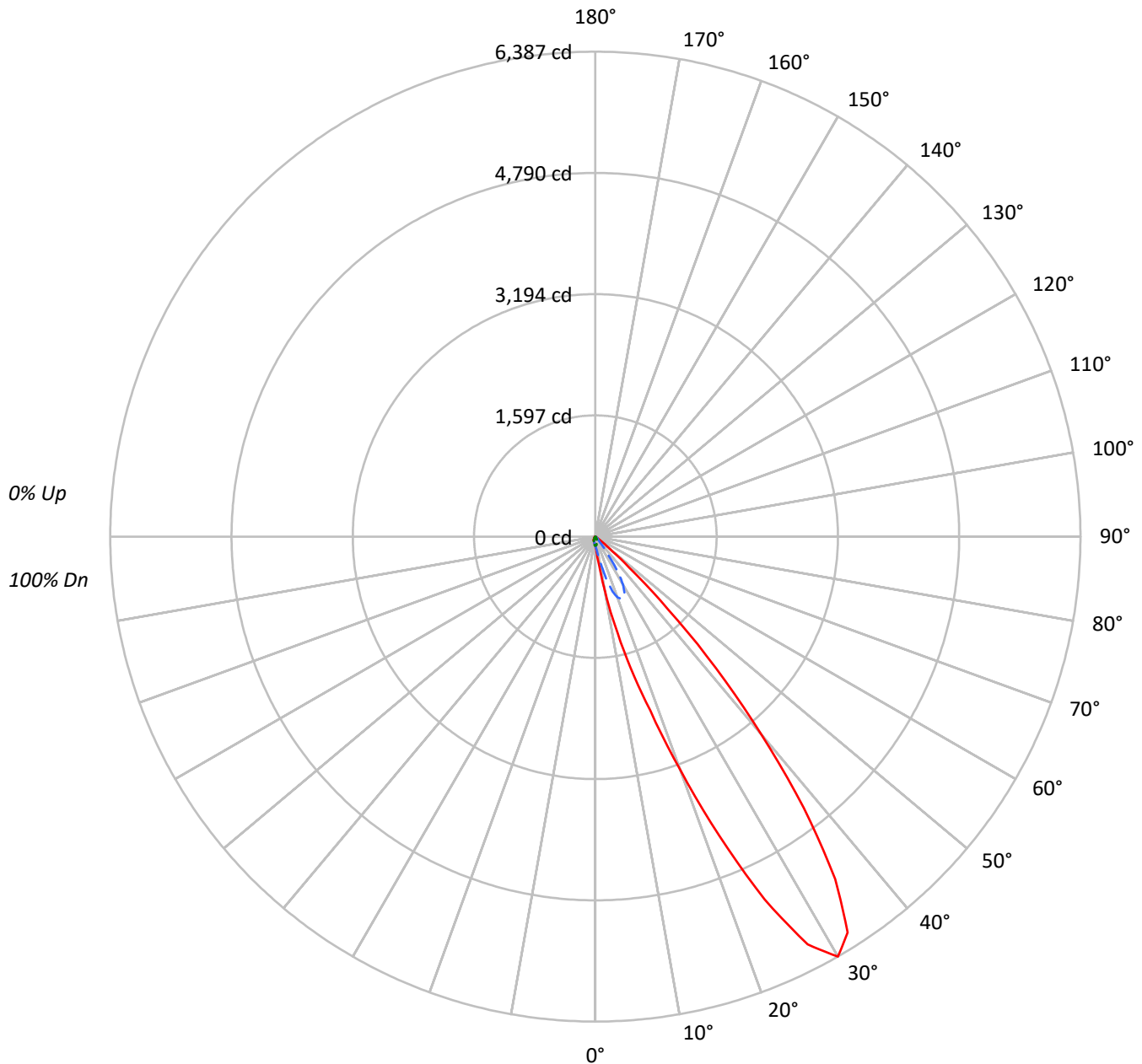
Lumens per Lamp: N/A
Luminaire Lumens: 1114.9 lumens
Efficiency: N/A
Efficacy: 54.7 lumens/watt
Spacing Criteria (0/90/45): 2.28 / 0.64 / 1.15
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 20.4
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	104	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°	11654	11654	11654
5°	22328	11096	9015
10°	73020	9847	7673
15°	178812	8134	6770
20°	336907	6206	6072
25°	563974	4393	5312
30°	714452	3020	4530
35°	650991	1951	3855
40°	428731	1404	3250
45°	185721	918	2685
50°	32946	648	2231
55°	5286	524	1875
60°	1298	484	1414
65°	436	573	1146
70°	340	708	878
75°	449	711	711
80°	0	1060	669
85°	0	2112	667



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	15.4	1.4
10°-20°	124.0	11.1
20°-30°	373.5	33.5
30°-40°	425.1	38.1
40°-50°	157.2	14.1
50°-60°	12.5	1.1
60°-70°	3.4	0.3
70°-80°	2.4	0.2
80°-90°	1.4	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°	513.0	46.0
0°-40°	938.1	84.1
0°-60°	1107.7	99.4
0°-90°	1114.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1114.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	120	120	120	120	120	
5°	230	169	114	96	93	37
15°	1783	602	81	64	68	559
25°	5276	880	41	40	50	2408
35°	5505	308	16	23	33	3273
45°	1356	36	7	12	20	1148
55°	31	7	3	7	11	51
65°	2	2	2	5	5	2
75°	1	2	2	3	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°	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
2.5°	154.7	155.9	154.7	152.3	152.3	149.2	148.0	146.7	143.6	141.9	139.4
5°	229.6	225.9	222.8	215.5	213.0	206.3	201.4	194.6	185.4	177.4	168.8
7.5°	392.9	387.4	375.7	353.6	340.2	323.5	310.7	289.2	261.6	238.8	216.1
10°	742.3	718.3	690.7	640.9	604.7	566.1	535.4	477.7	408.3	351.2	295.9
12.5°	1195.9	1197.8	1146.2	1062.2	995.2	927.0	874.3	767.4	644.7	537.2	430.9
15°	1782.9	1749.1	1695.7	1566.8	1432.9	1334.1	1250.0	1087.9	914.2	757.0	602.3
17.5°	2401.1	2415.3	2290.7	2080.1	1868.2	1720.2	1593.2	1347.6	1141.4	946.7	757.6
20°	3268.0	3171.1	2993.0	2651.6	2322.5	2108.3	1919.8	1601.1	1313.2	1065.8	853.4
22.5°	4267.5	4111.0	3748.7	3268.0	2770.1	2473.6	2210.8	1772.5	1422.5	1126.6	886.0
25°	5276.2	5156.5	4579.4	3861.1	3147.7	2763.4	2423.2	1888.5	1474.7	1140.7	880.4
27.5°	6054.7	5859.5	5202.0	4265.7	3373.0	2919.3	2522.1	1924.1	1463.6	1106.3	828.2
30°	6386.9	6140.1	5411.3	4357.8	3374.8	2893.5	2472.9	1853.5	1385.0	1019.1	730.0
32.5°	6181.8	5896.9	5162.1	4103.0	3144.0	2692.1	2283.2	1700.6	1254.9	882.2	548.3
35°	5504.6	5221.0	4540.1	3600.1	2775.7	2380.9	2025.4	1501.1	1068.9	653.9	308.2
37.5°	4507.6	4265.7	3778.8	3017.5	2339.2	2018.6	1722.7	1264.7	796.3	375.1	154.7
40°	3390.2	3220.2	2927.9	2393.1	1893.4	1649.6	1411.4	968.8	483.8	188.5	87.8
42.5°	2350.2	2239.7	2093.0	1770.6	1460.5	1292.9	1102.1	647.1	248.7	103.8	54.6
45°	1355.6	1286.2	1245.7	1108.2	987.2	905.6	736.8	348.7	125.8	62.0	36.2
47.5°	598.6	552.5	532.9	475.2	442.0	420.0	333.3	148.6	67.5	39.9	30.1
50°	218.6	218.6	219.2	192.8	157.8	141.9	111.1	65.7	38.0	31.3	22.1
52.5°	77.3	76.1	79.2	74.9	65.7	58.9	49.1	33.2	23.4	19.6	12.3
55°	31.3	30.1	31.3	29.5	27.6	25.7	22.7	17.8	14.8	12.3	6.7
57.5°	14.2	14.2	14.8	14.2	14.2	12.9	11.7	13.5	10.4	6.7	4.3
60°	6.7	6.7	7.3	7.3	7.3	6.7	6.7	7.3	6.1	4.3	3.1
62.5°	3.1	3.1	3.7	3.7	3.7	3.7	3.7	4.3	3.1	2.5	1.9
65°	1.9	1.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
67.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9	1.9
70°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9
72.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9
75°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.9
80°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2
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°	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
2.5°	136.9	135.0	131.4	129.6	127.1	125.2	124.0	121.6	119.1	117.2	116.0
5°	160.9	154.1	146.1	140.0	135.0	132.0	127.1	122.8	117.9	114.1	111.1
7.5°	195.8	179.3	161.5	149.2	142.5	136.3	127.7	120.3	113.6	108.7	104.3
10°	250.5	214.9	183.5	159.6	148.0	139.4	125.8	115.4	106.8	100.1	95.7
12.5°	341.4	268.3	213.0	172.6	154.7	141.9	122.8	108.7	98.2	91.5	85.9
15°	466.0	346.9	253.5	187.9	162.7	144.2	117.9	100.7	89.0	81.1	76.1
17.5°	583.2	429.2	299.6	206.3	170.7	145.5	111.1	90.3	78.0	70.6	65.7
20°	657.0	482.5	330.3	216.7	173.2	141.9	101.9	79.2	66.9	60.2	55.2
22.5°	674.1	488.7	327.9	206.9	162.7	130.8	89.0	68.1	56.5	50.4	46.0
25°	648.9	454.3	293.4	178.7	138.8	109.9	74.2	55.2	46.6	41.1	38.0
27.5°	585.7	386.8	232.1	134.4	103.8	81.1	56.5	43.0	37.4	33.2	31.3
30°	472.1	272.0	145.5	83.5	66.3	53.5	40.5	33.2	28.8	27.0	25.1
32.5°	286.1	140.0	76.7	49.7	41.8	36.2	29.5	24.6	22.1	20.9	20.3
35°	136.3	73.7	47.3	33.8	29.5	25.7	21.5	18.4	17.2	16.5	16.5
37.5°	77.3	47.9	31.9	22.7	20.3	17.8	15.9	14.2	13.5	13.5	13.5
40°	49.1	30.7	20.9	16.5	14.8	13.5	12.3	11.1	11.1	11.1	11.1
42.5°	31.9	22.1	15.9	12.3	11.1	10.4	9.2	8.6	8.6	8.6	9.2
45°	25.1	18.4	12.9	9.8	8.6	8.0	7.3	6.7	6.7	6.7	7.3
47.5°	21.5	12.9	8.6	6.7	5.5	5.5	5.0	5.0	5.0	5.5	6.1
50°	12.9	8.0	5.5	4.3	3.7	3.7	3.7	3.7	3.7	4.3	5.0
52.5°	7.3	5.0	3.7	3.1	2.5	2.5	2.5	2.5	3.1	3.7	3.7
55°	5.0	3.7	2.5	2.5	1.9	1.9	1.9	2.5	2.5	3.1	3.7
57.5°	3.1	2.5	1.9	1.9	1.9	1.9	1.9	1.9	2.5	3.1	3.1
60°	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1
62.5°	1.9	1.9	2.5	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1
65°	1.9	1.9	2.5	2.5	1.9	1.9	1.9	1.9	1.9	2.5	3.1
67.5°	1.9	1.9	2.5	2.5	2.5	2.5	1.9	1.9	1.9	2.5	2.5
70°	1.9	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	2.5	2.5
72.5°	1.9	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	2.5	2.5
75°	1.9	1.9	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	2.5
77.5°	1.9	1.9	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	2.5
80°	1.9	1.9	1.9	2.5	1.9	2.5	1.9	1.9	1.9	1.9	1.9
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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°	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
2.5°	114.1	113.0	111.1	110.5	111.1	110.5	107.4	106.8	105.6	105.6	105.6
5°	108.0	106.2	103.8	102.6	102.6	101.3	98.2	97.6	95.7	95.7	95.1
7.5°	100.7	98.2	95.1	94.0	94.0	92.7	89.6	88.4	87.2	87.2	86.5
10°	92.1	89.0	85.9	85.3	84.7	82.9	81.1	80.4	78.6	79.2	78.6
12.5°	82.3	79.8	77.3	76.1	76.1	74.2	73.1	72.5	71.9	71.9	71.9
15°	73.1	70.0	67.5	66.9	66.9	66.3	65.0	65.0	63.9	65.0	65.0
17.5°	62.7	60.2	59.6	58.3	58.9	58.3	57.1	57.7	57.7	58.3	58.9
20°	52.8	51.0	50.4	49.7	50.4	50.4	49.7	50.4	51.0	52.8	54.1
22.5°	44.3	43.0	43.0	42.4	43.0	43.6	43.0	44.3	45.4	46.6	48.5
25°	36.8	36.2	36.2	36.2	36.8	37.4	38.0	39.3	39.9	41.8	43.0
27.5°	30.1	30.1	30.1	30.7	31.3	31.9	32.6	34.4	34.9	36.8	38.0
30°	25.1	24.6	25.1	25.7	26.4	27.6	28.2	29.5	30.1	31.9	33.2
32.5°	20.3	20.9	21.5	22.1	22.7	23.4	24.0	25.1	26.4	27.6	28.8
35°	17.2	17.2	17.8	18.4	19.0	20.3	20.9	21.5	22.7	24.0	24.6
37.5°	14.2	14.8	15.3	15.9	16.5	17.2	17.8	18.4	19.0	20.3	21.5
40°	11.7	12.3	12.9	13.5	13.5	14.8	14.8	15.9	16.5	17.8	19.0
42.5°	9.8	10.4	11.1	11.7	11.7	12.3	12.9	13.5	14.2	15.3	16.5
45°	8.0	8.6	9.2	9.8	9.8	10.4	11.1	11.7	12.3	13.5	14.2
47.5°	6.7	7.3	8.0	8.6	8.6	9.2	9.8	10.4	10.4	11.7	12.3
50°	5.5	6.1	6.7	7.3	7.3	8.0	8.6	9.2	9.2	9.8	10.4
52.5°	4.3	5.0	6.1	6.1	6.7	7.3	7.3	8.0	8.0	8.6	9.2
55°	4.3	5.0	5.5	5.5	6.1	6.7	6.7	7.3	7.3	7.3	8.0
57.5°	3.7	4.3	5.0	5.5	5.5	6.1	6.1	6.1	6.1	6.7	6.7
60°	3.7	4.3	4.3	5.0	5.0	5.5	5.5	5.5	5.5	6.1	6.1
62.5°	3.7	3.7	4.3	4.3	5.0	5.0	5.0	5.5	5.5	5.5	5.5
65°	3.1	3.7	4.3	4.3	4.3	5.0	5.0	5.0	5.0	5.0	5.0
67.5°	3.1	3.7	3.7	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
70°	3.1	3.1	3.7	3.7	3.7	4.3	4.3	4.3	3.7	4.3	3.7
72.5°	2.5	3.1	3.1	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
75°	2.5	3.1	3.1	3.1	3.1	3.7	3.7	3.1	3.1	3.1	3.1
77.5°	2.5	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.5
80°	2.5	2.5	2.5	2.5	3.1	3.1	2.5	2.5	2.5	2.5	2.5
82.5°	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9
85°	1.9	1.9	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9	1.2
87.5°	1.9	1.9	1.9	2.5	1.9	1.9	1.9	1.9	1.2	1.2	1.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Cooper Lighting Solutions Photometric Lab

1121 Highway 74 South

Peachtree City, GA 30269



TEST NUMBER: P1219457

CATALOG NUMBER: LDSQA4A15927D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
2.5°	103.8	103.2	103.8	103.2	103.2	103.8	101.9	103.2
5°	94.0	92.7	93.4	92.7	92.1	92.7	91.5	92.7
7.5°	85.3	84.7	84.7	84.7	84.2	84.7	83.5	84.7
10°	78.0	77.3	77.3	77.3	77.3	78.0	76.7	78.0
12.5°	70.6	70.6	71.2	70.6	71.2	71.9	70.6	71.9
15°	64.4	65.0	65.7	65.7	66.3	66.9	66.3	67.5
17.5°	59.6	60.2	61.4	61.4	62.0	63.3	62.7	63.9
20°	54.6	55.2	56.5	56.5	57.1	58.3	57.7	58.9
22.5°	49.1	50.4	51.0	51.6	52.2	53.5	52.8	54.1
25°	43.6	45.4	46.0	46.6	47.3	48.5	48.5	49.7
27.5°	39.3	40.5	41.1	41.8	43.0	44.3	44.3	44.8
30°	34.4	35.6	36.8	37.4	38.0	39.3	39.3	40.5
32.5°	30.1	31.3	31.9	32.6	33.8	34.9	35.6	36.2
35°	25.7	27.6	28.2	29.5	30.1	31.9	31.9	32.6
37.5°	22.7	24.0	25.1	25.7	27.0	28.2	28.2	29.5
40°	20.3	21.5	22.1	22.7	24.0	25.1	25.1	25.7
42.5°	17.2	19.0	19.6	20.3	20.9	22.1	22.7	23.4
45°	15.3	15.9	16.5	17.2	17.8	19.0	19.0	19.6
47.5°	12.9	13.5	14.2	14.8	15.3	15.9	16.5	17.2
50°	11.1	11.7	12.3	12.3	12.9	14.2	14.2	14.8
52.5°	9.2	9.8	10.4	10.4	11.1	12.3	12.3	12.9
55°	8.0	8.6	9.2	9.2	9.8	10.4	10.4	11.1
57.5°	7.3	7.3	8.0	8.0	8.6	8.6	9.2	9.2
60°	6.1	6.7	6.7	6.7	7.3	7.3	7.3	7.3
62.5°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.1
65°	5.0	5.0	5.0	5.0	5.0	5.0	4.3	5.0
67.5°	4.3	4.3	4.3	4.3	3.7	3.7	3.7	3.7
70°	3.7	3.7	3.7	3.7	3.7	3.1	3.1	3.1
72.5°	3.1	3.1	3.1	3.1	3.1	2.5	2.5	2.5
75°	3.1	3.1	2.5	2.5	2.5	2.5	2.5	1.9
77.5°	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.2	1.2
82.5°	1.9	1.2	1.2	1.2	1.2	1.2	1.2	1.2
85°	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6
87.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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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