

Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P563660

Luminaire Tested: FSR-24-4-LD4-4HI-35-UNV-81-96-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563660  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-5)  
Test Lab: INNOVATION CENTER  
Issue Date: 7/20/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: FAIL-SAFE  
Catalog Number: FSR-24-4-LD4-4HI-35-UNV-81-96-EDD-90  
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

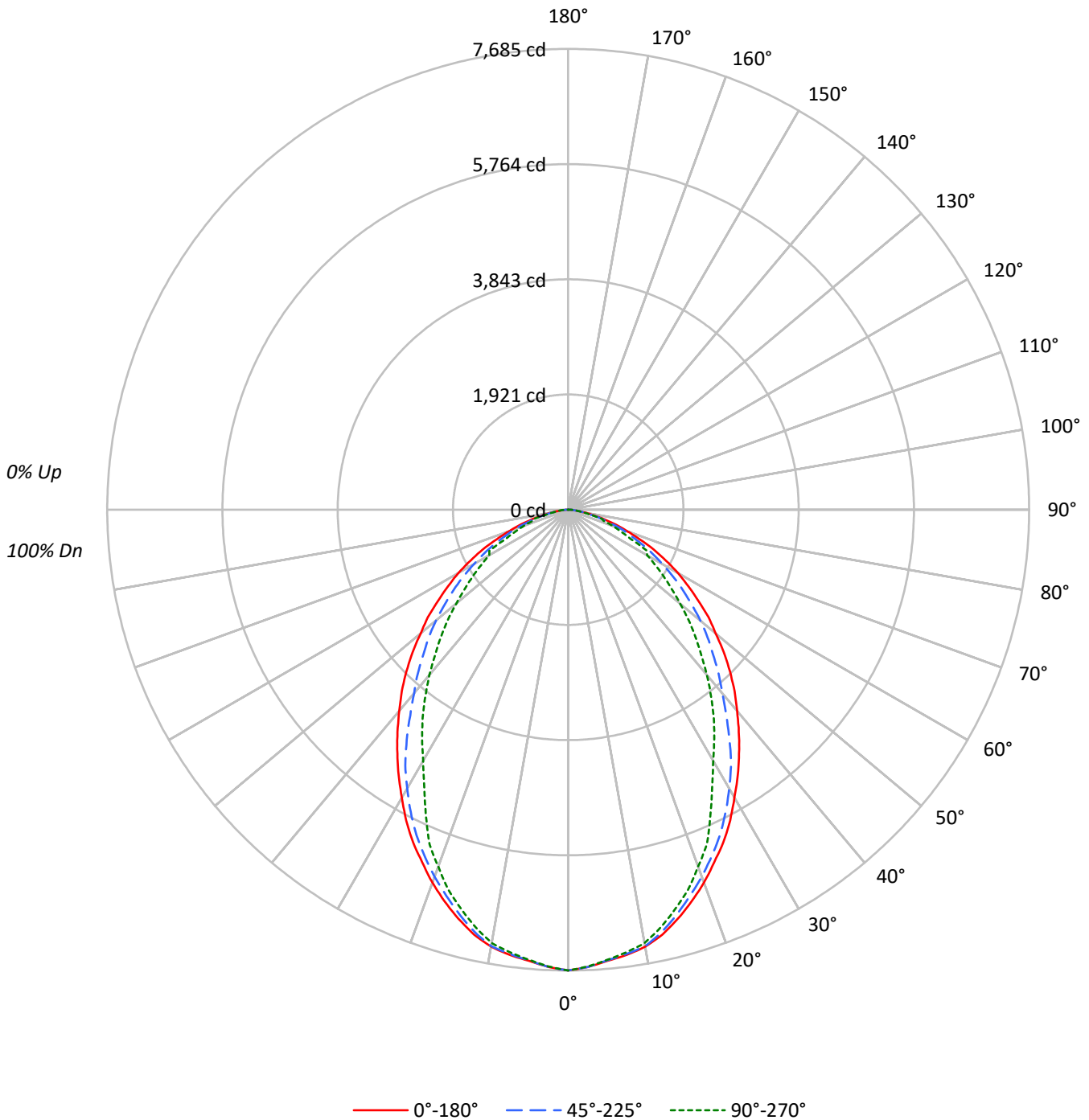
Lumens per Lamp: N/A  
Luminaire Lumens: 15086.0 lumens  
Efficiency: N/A  
Efficacy: 87.3 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 172.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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: 24 FT



TEST NUMBER: P563660

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-81-96-EDD-90

### Luminous Intensity Polar Plot





TEST NUMBER: P563660

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-81-96-EDD-90

**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	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	110	106	102	99	108	104	100	97	100	97	94	96	94	91	92	90	89	87																												
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	75																												
3	93	84	77	71	91	82	76	70	79	74	69	77	72	68	74	70	67	65																												
4	86	75	67	61	84	74	66	61	72	65	60	69	64	59	67	62	58	56																												
5	80	68	60	54	78	67	59	53	65	58	53	63	57	52	61	56	52	50																												
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44																												
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40																												
8	65	52	44	38	63	51	44	38	50	43	38	49	42	38	48	42	38	36																												
9	61	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	33																												
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30																												

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	10340	10340	10340
5°	10199	10187	10175
10°	10111	10098	10026
15°	9838	9739	9603
20°	9477	9324	9070
25°	9087	8889	8335
30°	8613	8337	7509
35°	8157	7705	6946
40°	7693	7022	6320
45°	7252	6491	5714
50°	6713	6025	5095
55°	6210	5460	4564
60°	5690	4877	4088
65°	5006	4271	3620
70°	4124	3740	3076
75°	3279	2863	3002
80°	2203	2065	1928
85°	1371	1646	1920

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7252 cd/sqm



TEST NUMBER: P563660

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-81-96-EDD-90

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	715.3	4.7
10°-20°	1963.2	13.0
20°-30°	2717.9	18.0
30°-40°	2898.1	19.2
40°-50°	2643.9	17.5
50°-60°	2071.3	13.7
60°-70°	1350.0	8.9
70°-80°	598.1	4.0
80°-90°	128.4	0.9
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°	5396.4	35.8
0°-40°	8294.4	55.0
0°-60°	13009.6	86.2
0°-90°	15086.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	15086.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	7685	7685	7685	7685	7685	
5°	7551	7542	7542	7534	7534	717
15°	7063	7063	6992	6921	6894	1986
25°	6121	6086	5988	5775	5615	2810
35°	4966	4931	4691	4335	4229	3105
45°	3811	3731	3411	3127	3003	2936
55°	2647	2568	2328	2052	1946	2375
65°	1572	1484	1342	1368	1137	1550
75°	631	586	551	524	578	676
85°	89	98	107	116	124	123
90°	0	0	0	0	0	



TEST NUMBER: P563660

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-81-96-EDD-90

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	7684.6	7684.6	7684.6	7684.6	7684.6
2.5°	7631.3	7631.3	7631.3	7622.4	7622.4
5°	7551.3	7542.5	7542.5	7533.6	7533.6
7.5°	7489.2	7480.3	7471.4	7462.5	7444.7
10°	7400.3	7400.3	7391.4	7347.0	7338.1
12.5°	7258.2	7249.3	7213.8	7151.6	7133.8
15°	7062.7	7062.7	6991.7	6920.6	6893.9
17.5°	6849.5	6840.6	6751.8	6680.7	6645.2
20°	6618.5	6600.8	6511.9	6396.4	6334.2
22.5°	6360.9	6360.9	6254.3	6103.3	6041.1
25°	6121.0	6085.5	5987.8	5774.6	5614.6
27.5°	5845.6	5792.3	5685.7	5383.7	5197.1
30°	5543.6	5516.9	5365.9	4975.0	4832.9
32.5°	5259.3	5214.9	5055.0	4646.3	4530.8
35°	4966.1	4930.6	4690.7	4335.4	4228.8
37.5°	4673.0	4628.5	4326.5	4042.2	3908.9
40°	4379.8	4326.5	3997.8	3740.1	3598.0
42.5°	4104.4	4033.3	3713.5	3438.1	3278.2
45°	3811.2	3731.3	3411.4	3127.1	3002.8
47.5°	3518.0	3447.0	3153.8	2860.6	2718.5
50°	3207.1	3144.9	2878.4	2585.2	2434.2
52.5°	2949.5	2851.7	2594.1	2300.9	2176.6
55°	2647.4	2567.5	2327.6	2052.2	1945.6
57.5°	2372.0	2292.1	2070.0	1812.3	1723.5
60°	2114.4	1998.9	1812.3	1590.2	1519.2
62.5°	1830.1	1741.3	1581.3	1394.8	1483.6
65°	1572.5	1483.6	1341.5	1368.1	1137.1
67.5°	1288.2	1243.8	1119.4	995.0	959.5
70°	1048.3	995.0	950.6	817.3	781.8
72.5°	835.1	781.8	719.6	648.5	621.9
75°	630.8	586.3	550.8	524.2	577.5
77.5°	435.3	417.5	390.9	364.2	355.4
80°	284.3	275.4	266.5	257.6	248.8
82.5°	168.8	168.8	168.8	168.8	168.8
85°	88.8	97.7	106.6	115.5	124.4
87.5°	53.3	53.3	62.2	71.1	80.0
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)