

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: P563682

Luminaire Tested: FSR-24-4-LD4-4HI-35-UNV-93-85-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563682  
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-93-85-EDD-90  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

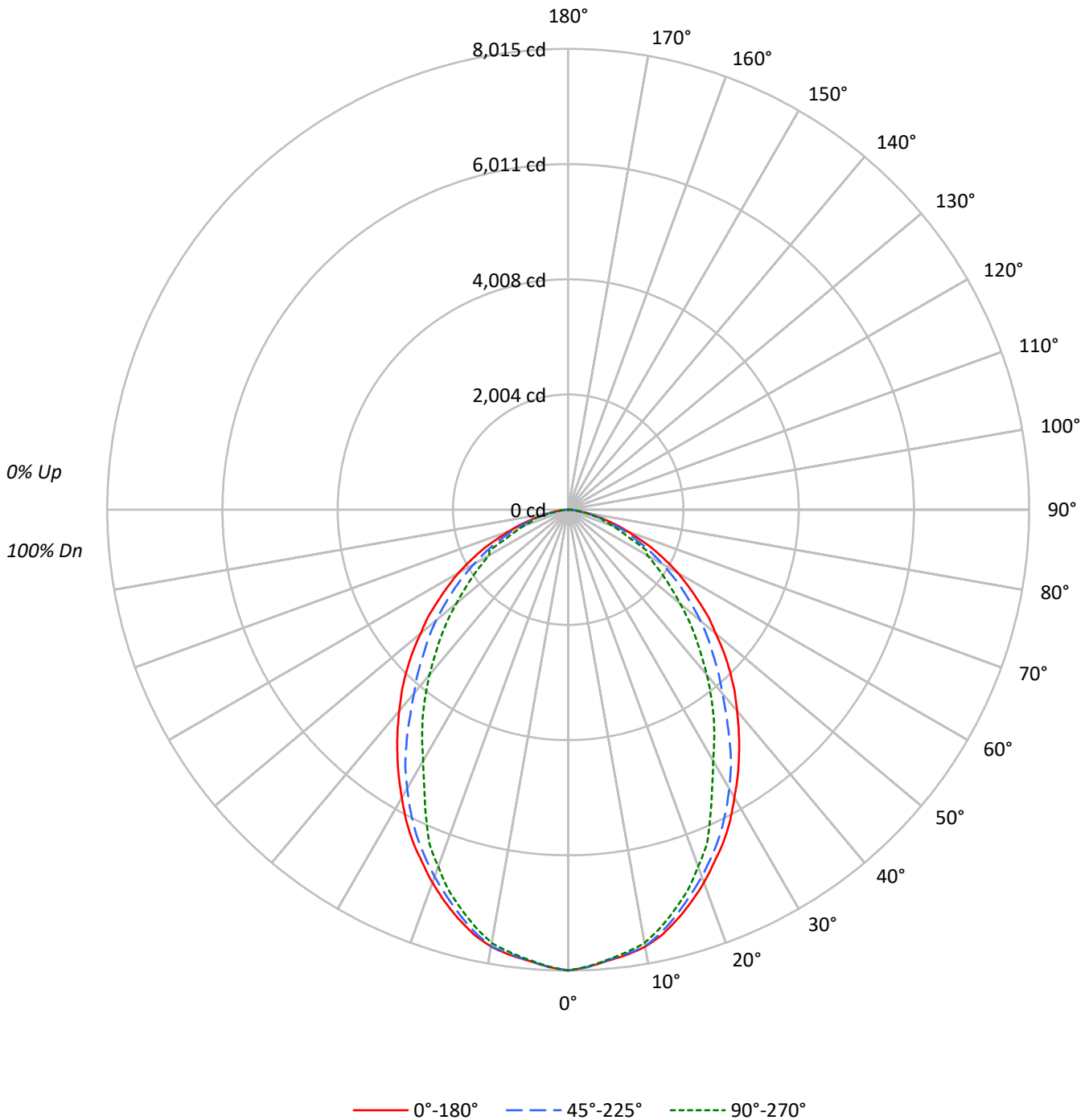
Lumens per Lamp: N/A  
Luminaire Lumens: 15734.0 lumens  
Efficiency: N/A  
Efficacy: 91.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 172.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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: P563682

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-93-85-EDD-90

### Luminous Intensity Polar Plot





TEST NUMBER: P563682

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-93-85-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°	10784	10784	10784
5°	10637	10625	10612
10°	10545	10532	10456
15°	10261	10157	10015
20°	9884	9724	9459
25°	9478	9271	8693
30°	8983	8695	7831
35°	8507	8036	7244
40°	8023	7323	6591
45°	7563	6770	5959
50°	7002	6284	5314
55°	6477	5695	4760
60°	5934	5086	4264
65°	5221	4454	3776
70°	4301	3900	3208
75°	3420	2987	3131
80°	2297	2154	2010
85°	1431	1717	2002

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7563 cd/sqm



TEST NUMBER: P563682

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-93-85-EDD-90

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	746.1	4.7
10°-20°	2047.5	13.0
20°-30°	2834.6	18.0
30°-40°	3022.5	19.2
40°-50°	2757.4	17.5
50°-60°	2160.2	13.7
60°-70°	1407.9	8.9
70°-80°	623.8	4.0
80°-90°	133.9	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°	5628.2	35.8
0°-40°	8650.7	55.0
0°-60°	13568.4	86.2
0°-90°	15734.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	15734.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	8015	8015	8015	8015	8015	
5°	7876	7866	7866	7857	7857	748
15°	7366	7366	7292	7218	7190	2071
25°	6384	6347	6245	6023	5856	2931
35°	5179	5142	4892	4522	4410	3238
45°	3975	3892	3558	3262	3132	3062
55°	2761	2678	2428	2140	2029	2477
65°	1640	1547	1399	1427	1186	1616
75°	658	612	574	547	602	705
85°	93	102	111	120	130	129
90°	0	0	0	0	0	



TEST NUMBER: P563682

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-93-85-EDD-90

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	8014.7	8014.7	8014.7	8014.7	8014.7
2.5°	7959.1	7959.1	7959.1	7949.8	7949.8
5°	7875.7	7866.4	7866.4	7857.2	7857.2
7.5°	7810.8	7801.6	7792.3	7783.1	7764.5
10°	7718.2	7718.2	7708.9	7662.6	7653.3
12.5°	7569.9	7560.7	7523.6	7458.8	7440.2
15°	7366.1	7366.1	7292.0	7217.9	7190.1
17.5°	7143.7	7134.5	7041.8	6967.7	6930.6
20°	6902.8	6884.3	6791.6	6671.2	6606.3
22.5°	6634.1	6634.1	6522.9	6365.4	6300.6
25°	6384.0	6346.9	6245.0	6022.6	5855.8
27.5°	6096.7	6041.1	5929.9	5614.9	5420.3
30°	5781.7	5753.9	5596.4	5188.7	5040.5
32.5°	5485.2	5438.9	5272.1	4845.9	4725.4
35°	5179.4	5142.4	4892.2	4521.6	4410.4
37.5°	4873.7	4827.3	4512.3	4215.8	4076.8
40°	4567.9	4512.3	4169.5	3900.8	3752.5
42.5°	4280.7	4206.6	3873.0	3585.8	3419.0
45°	3974.9	3891.5	3558.0	3261.5	3131.8
47.5°	3669.2	3595.0	3289.3	2983.5	2835.3
50°	3344.9	3280.0	3002.0	2696.3	2538.8
52.5°	3076.2	2974.2	2705.5	2399.8	2270.1
55°	2761.1	2677.7	2427.6	2140.3	2029.2
57.5°	2473.9	2390.5	2158.9	1890.2	1797.5
60°	2205.2	2084.7	1890.2	1658.5	1584.4
62.5°	1908.7	1816.0	1649.3	1454.7	1547.3
65°	1640.0	1547.3	1399.1	1426.9	1186.0
67.5°	1343.5	1297.2	1167.5	1037.7	1000.7
70°	1093.3	1037.7	991.4	852.4	815.4
72.5°	871.0	815.4	750.5	676.4	648.6
75°	657.9	611.5	574.5	546.7	602.3
77.5°	454.0	435.5	407.7	379.9	370.6
80°	296.5	287.2	278.0	268.7	259.4
82.5°	176.0	176.0	176.0	176.0	176.0
85°	92.7	101.9	111.2	120.5	129.7
87.5°	55.6	55.6	64.9	74.1	83.4
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)