

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: P563112

Luminaire Tested: FSR-24-4-LD4-3HI-35-UNV-93-88-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563112  
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-LD4-3HI-35-UNV-93-88-EDD-90  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

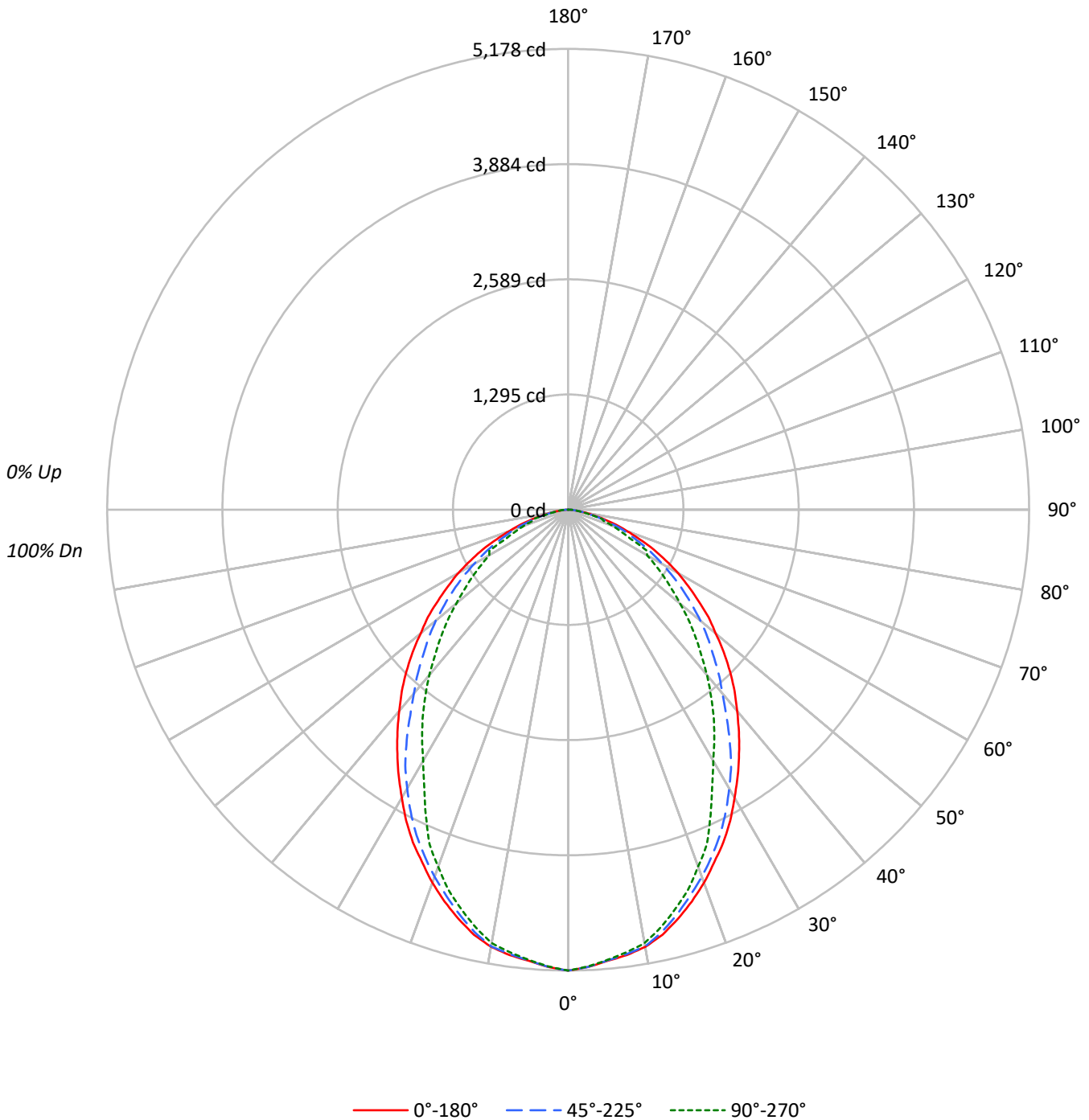
Lumens per Lamp: N/A  
Luminaire Lumens: 10166.0 lumens  
Efficiency: N/A  
Efficacy: 78.4 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 129.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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: P563112

CATALOG NUMBER: FSR-24-4-LD4-3HI-35-UNV-93-88-EDD-90

### Luminous Intensity Polar Plot





TEST NUMBER: P563112

CATALOG NUMBER: FSR-24-4-LD4-3HI-35-UNV-93-88-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°	6967	6967	6967
5°	6873	6865	6857
10°	6813	6805	6756
15°	6630	6563	6471
20°	6386	6283	6112
25°	6124	5990	5617
30°	5804	5618	5060
35°	5497	5192	4681
40°	5184	4732	4259
45°	4887	4374	3850
50°	4524	4060	3433
55°	4185	3679	3076
60°	3834	3286	2755
65°	3373	2878	2440
70°	2779	2520	2072
75°	2209	1930	2023
80°	1485	1392	1299
85°	925	1108	1294

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4887 cd/sqm



TEST NUMBER: P563112

CATALOG NUMBER: FSR-24-4-LD4-3HI-35-UNV-93-88-EDD-90

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	482.0	4.7
10°-20°	1322.9	13.0
20°-30°	1831.5	18.0
30°-40°	1952.9	19.2
40°-50°	1781.6	17.5
50°-60°	1395.8	13.7
60°-70°	909.7	8.9
70°-80°	403.0	4.0
80°-90°	86.5	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°	3636.5	35.8
0°-40°	5589.4	55.0
0°-60°	8766.8	86.2
0°-90°	10166.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	10166.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5178	5178	5178	5178	5178	
5°	5089	5083	5083	5077	5077	483
15°	4759	4759	4712	4664	4646	1338
25°	4125	4101	4035	3891	3784	1894
35°	3346	3323	3161	2922	2850	2092
45°	2568	2514	2299	2107	2024	1978
55°	1784	1730	1568	1383	1311	1600
65°	1060	1000	904	922	766	1044
75°	425	395	371	353	389	456
85°	60	66	72	78	84	83
90°	0	0	0	0	0	



TEST NUMBER: P563112

CATALOG NUMBER: FSR-24-4-LD4-3HI-35-UNV-93-88-EDD-90

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5178.4	5178.4	5178.4	5178.4	5178.4
2.5°	5142.5	5142.5	5142.5	5136.5	5136.5
5°	5088.6	5082.6	5082.6	5076.7	5076.7
7.5°	5046.7	5040.7	5034.7	5028.8	5016.8
10°	4986.9	4986.9	4980.9	4950.9	4944.9
12.5°	4891.1	4885.1	4861.1	4819.2	4807.3
15°	4759.4	4759.4	4711.5	4663.6	4645.6
17.5°	4615.7	4609.7	4549.8	4501.9	4478.0
20°	4460.0	4448.1	4388.2	4310.4	4268.5
22.5°	4286.4	4286.4	4214.6	4112.8	4070.9
25°	4124.8	4100.8	4035.0	3891.3	3783.5
27.5°	3939.2	3903.3	3831.4	3627.9	3502.2
30°	3735.6	3717.7	3615.9	3352.5	3256.7
32.5°	3544.1	3514.1	3406.4	3131.0	3053.2
35°	3346.5	3322.6	3160.9	2921.5	2849.6
37.5°	3149.0	3119.0	2915.5	2723.9	2634.1
40°	2951.4	2915.5	2694.0	2520.4	2424.6
42.5°	2765.8	2717.9	2502.4	2316.8	2209.1
45°	2568.3	2514.4	2298.9	2107.3	2023.5
47.5°	2370.7	2322.8	2125.2	1927.7	1831.9
50°	2161.2	2119.3	1939.7	1742.1	1640.3
52.5°	1987.6	1921.7	1748.1	1550.5	1466.7
55°	1784.0	1730.1	1568.5	1382.9	1311.1
57.5°	1598.4	1544.5	1394.9	1221.3	1161.4
60°	1424.8	1347.0	1221.3	1071.6	1023.7
62.5°	1233.2	1173.4	1065.6	939.9	999.8
65°	1059.6	999.8	904.0	921.9	766.3
67.5°	868.1	838.1	754.3	670.5	646.6
70°	706.4	670.5	640.6	550.8	526.8
72.5°	562.7	526.8	484.9	437.0	419.1
75°	425.0	395.1	371.2	353.2	389.1
77.5°	293.3	281.4	263.4	245.5	239.5
80°	191.6	185.6	179.6	173.6	167.6
82.5°	113.7	113.7	113.7	113.7	113.7
85°	59.9	65.9	71.8	77.8	83.8
87.5°	35.9	35.9	41.9	47.9	53.9
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)