

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: P563498

Luminaire Tested: FSR-24-4-LD4-3STD-35-UNV-93-94-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563498  
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-LD4-3STD-35-UNV-93-94-EDD-90  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR TEMPER  
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

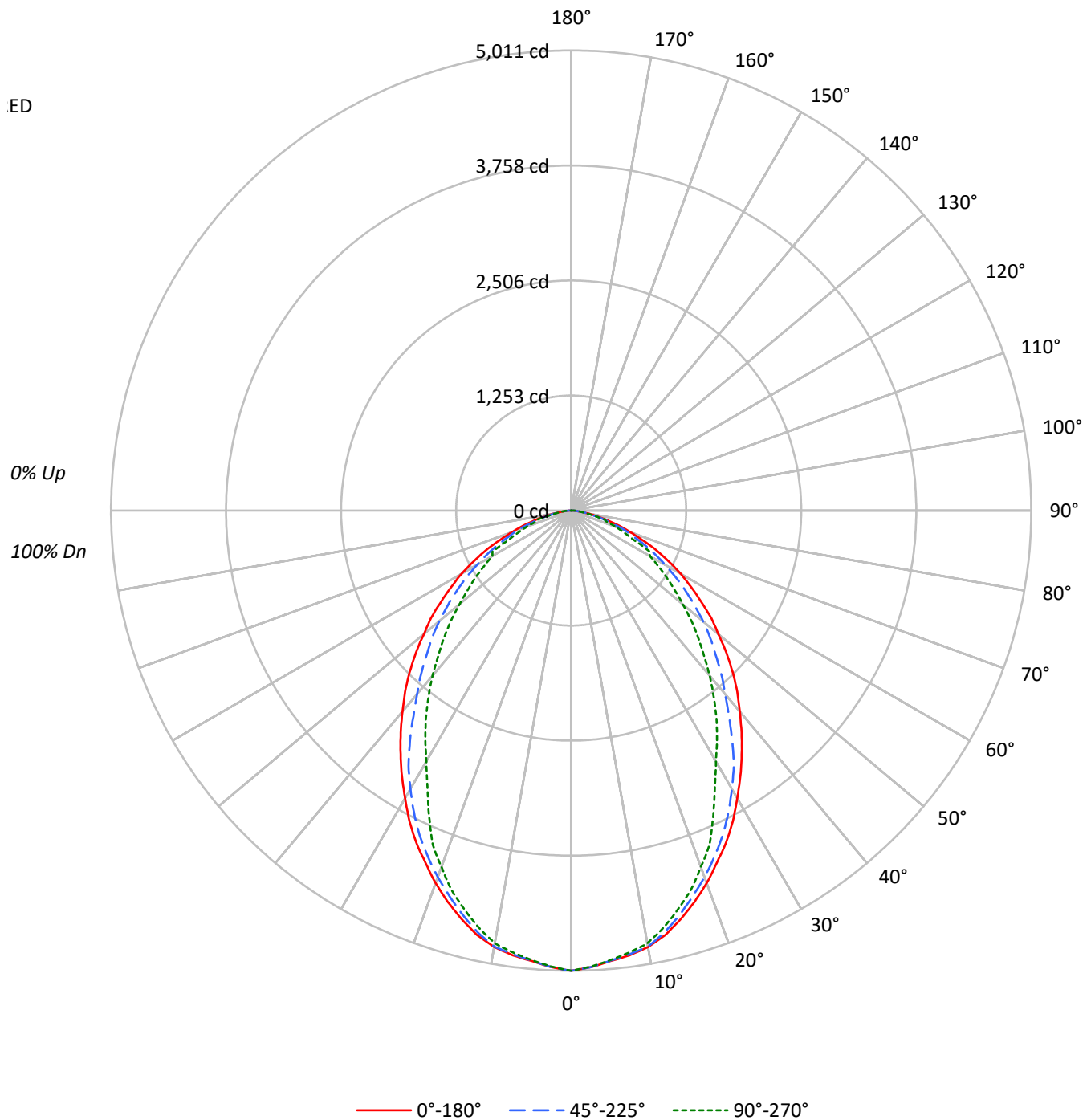
Lumens per Lamp: N/A  
Luminaire Lumens: 9838.0 lumens  
Efficiency: N/A  
Efficacy: 98.5 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 99.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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



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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									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°	6743	6743	6743
5°	6651	6643	6636
10°	6594	6586	6538
15°	6416	6351	6262
20°	6180	6080	5915
25°	5926	5797	5436
30°	5617	5437	4896
35°	5319	5024	4530
40°	5017	4579	4121
45°	4729	4233	3726
50°	4378	3929	3323
55°	4050	3561	2976
60°	3710	3180	2666
65°	3265	2785	2361
70°	2689	2439	2006
75°	2138	1867	1958
80°	1437	1347	1257
85°	894	1073	1252

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4729 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	466.5	4.7
10°-20°	1280.2	13.0
20°-30°	1772.4	18.0
30°-40°	1889.9	19.2
40°-50°	1724.1	17.5
50°-60°	1350.7	13.7
60°-70°	880.3	8.9
70°-80°	390.0	4.0
80°-90°	83.7	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°	3519.1	35.8
0°-40°	5409.0	55.0
0°-60°	8483.9	86.2
0°-90°	9838.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9838.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5011	5011	5011	5011	5011	
5°	4924	4919	4919	4913	4913	467
15°	4606	4606	4560	4513	4496	1295
25°	3992	3968	3905	3766	3662	1833
35°	3238	3215	3059	2827	2758	2025
45°	2485	2433	2225	2039	1958	1914
55°	1726	1674	1518	1338	1269	1549
65°	1025	968	875	892	742	1011
75°	411	382	359	342	377	441
85°	58	64	70	75	81	80
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5011.3	5011.3	5011.3	5011.3	5011.3
2.5°	4976.6	4976.6	4976.6	4970.8	4970.8
5°	4924.4	4918.7	4918.7	4912.9	4912.9
7.5°	4883.9	4878.1	4872.3	4866.5	4854.9
10°	4826.0	4826.0	4820.2	4791.2	4785.4
12.5°	4733.3	4727.5	4704.3	4663.7	4652.2
15°	4605.8	4605.8	4559.5	4513.1	4495.7
17.5°	4466.8	4461.0	4403.0	4356.7	4333.5
20°	4316.1	4304.5	4246.6	4171.3	4130.7
22.5°	4148.1	4148.1	4078.6	3980.1	3939.6
25°	3991.7	3968.5	3904.8	3765.8	3661.5
27.5°	3812.1	3777.3	3707.8	3510.8	3389.2
30°	3615.1	3597.7	3499.3	3244.3	3151.6
32.5°	3429.7	3400.8	3296.5	3030.0	2954.7
35°	3238.5	3215.4	3058.9	2827.2	2757.7
37.5°	3047.4	3018.4	2821.4	2636.0	2549.1
40°	2856.2	2821.4	2607.1	2439.0	2346.4
42.5°	2676.6	2630.2	2421.7	2242.1	2137.8
45°	2485.4	2433.3	2224.7	2039.3	1958.2
47.5°	2294.2	2247.9	2056.7	1865.5	1772.8
50°	2091.4	2050.9	1877.1	1685.9	1587.4
52.5°	1923.4	1859.7	1691.7	1500.5	1419.4
55°	1726.5	1674.3	1517.9	1338.3	1268.8
57.5°	1546.9	1494.7	1349.9	1181.9	1123.9
60°	1378.8	1303.5	1181.9	1037.0	990.7
62.5°	1193.5	1135.5	1031.2	909.6	967.5
65°	1025.4	967.5	874.8	892.2	741.6
67.5°	840.1	811.1	730.0	648.9	625.7
70°	683.6	648.9	619.9	533.0	509.8
72.5°	544.6	509.8	469.3	422.9	405.5
75°	411.3	382.4	359.2	341.8	376.6
77.5°	283.9	272.3	254.9	237.5	231.7
80°	185.4	179.6	173.8	168.0	162.2
82.5°	110.1	110.1	110.1	110.1	110.1
85°	57.9	63.7	69.5	75.3	81.1
87.5°	34.8	34.8	40.6	46.3	52.1
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)