

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: P563684

Luminaire Tested: FSR-24-4-LD4-4HI-35-UNV-93-86-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563684  
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-93-86-EDD-90  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

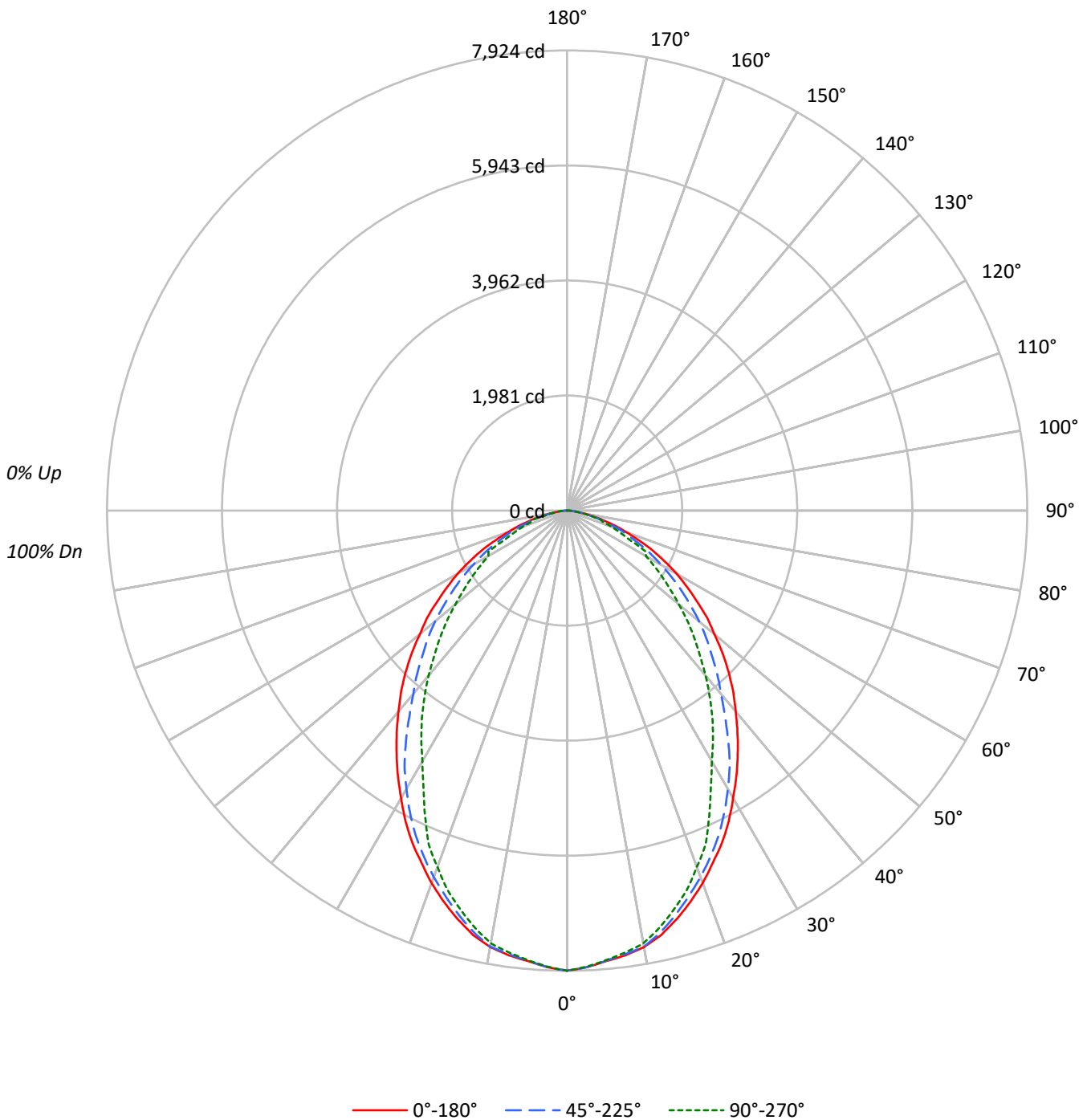
Lumens per Lamp: N/A  
Luminaire Lumens: 15556.0 lumens  
Efficiency: N/A  
Efficacy: 90.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 172.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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



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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°	10662	10662	10662
5°	10517	10504	10492
10°	10426	10413	10338
15°	10145	10042	9902
20°	9772	9615	9352
25°	9370	9166	8595
30°	8881	8596	7742
35°	8411	7945	7162
40°	7932	7240	6516
45°	7478	6694	5892
50°	6922	6213	5254
55°	6404	5630	4706
60°	5867	5029	4215
65°	5162	4404	3733
70°	4253	3856	3171
75°	3381	2953	3095
80°	2271	2129	1987
85°	1414	1697	1981

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7478 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	737.6	4.7
10°-20°	2024.3	13.0
20°-30°	2802.6	18.0
30°-40°	2988.3	19.2
40°-50°	2726.2	17.5
50°-60°	2135.8	13.7
60°-70°	1392.0	8.9
70°-80°	616.7	4.0
80°-90°	132.4	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°	5564.5	35.8
0°-40°	8552.8	55.0
0°-60°	13414.9	86.2
0°-90°	15556.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	15556.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	7924	7924	7924	7924	7924	
5°	7787	7777	7777	7768	7768	739
15°	7283	7283	7210	7136	7109	2047
25°	6312	6275	6174	5954	5790	2898
35°	5121	5084	4837	4470	4360	3201
45°	3930	3848	3518	3225	3096	3027
55°	2730	2647	2400	2116	2006	2449
65°	1621	1530	1383	1411	1173	1598
75°	650	605	568	540	595	697
85°	92	101	110	119	128	127
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	7924.0	7924.0	7924.0	7924.0	7924.0
2.5°	7869.1	7869.1	7869.1	7859.9	7859.9
5°	7786.6	7777.4	7777.4	7768.3	7768.3
7.5°	7722.5	7713.3	7704.2	7695.0	7676.7
10°	7630.9	7630.9	7621.7	7575.9	7566.8
12.5°	7484.3	7475.1	7438.5	7374.4	7356.1
15°	7282.8	7282.8	7209.5	7136.2	7108.7
17.5°	7062.9	7053.8	6962.1	6888.9	6852.2
20°	6824.7	6806.4	6714.8	6595.7	6531.6
22.5°	6559.1	6559.1	6449.1	6293.4	6229.3
25°	6311.7	6275.1	6174.3	5954.5	5789.6
27.5°	6027.8	5972.8	5862.9	5551.4	5359.0
30°	5716.3	5688.8	5533.1	5130.0	4983.4
32.5°	5423.1	5377.3	5212.4	4791.1	4672.0
35°	5120.8	5084.2	4836.9	4470.4	4360.5
37.5°	4818.5	4772.7	4461.3	4168.1	4030.7
40°	4516.2	4461.3	4122.3	3856.7	3710.1
42.5°	4232.3	4159.0	3829.2	3545.2	3380.3
45°	3929.9	3847.5	3517.7	3224.6	3096.3
47.5°	3627.6	3554.4	3252.1	2949.8	2803.2
50°	3307.0	3242.9	2968.1	2665.8	2510.0
52.5°	3041.4	2940.6	2674.9	2372.6	2244.4
55°	2729.9	2647.4	2400.1	2116.1	2006.2
57.5°	2445.9	2363.5	2134.4	1868.8	1777.2
60°	2180.3	2061.2	1868.8	1639.8	1566.5
62.5°	1887.1	1795.5	1630.6	1438.2	1529.8
65°	1621.4	1529.8	1383.3	1410.8	1172.6
67.5°	1328.3	1282.5	1154.3	1026.0	989.4
70°	1081.0	1026.0	980.2	842.8	806.1
72.5°	861.1	806.1	742.0	668.7	641.3
75°	650.4	604.6	568.0	540.5	595.4
77.5°	448.9	430.6	403.1	375.6	366.4
80°	293.1	284.0	274.8	265.7	256.5
82.5°	174.1	174.1	174.1	174.1	174.1
85°	91.6	100.8	109.9	119.1	128.3
87.5°	55.0	55.0	64.1	73.3	82.4
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)