

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: P563680

Luminaire Tested: FSR-24-4-LD4-4HI-35-UNV-93-84-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563680  
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-93-84-EDD-90  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

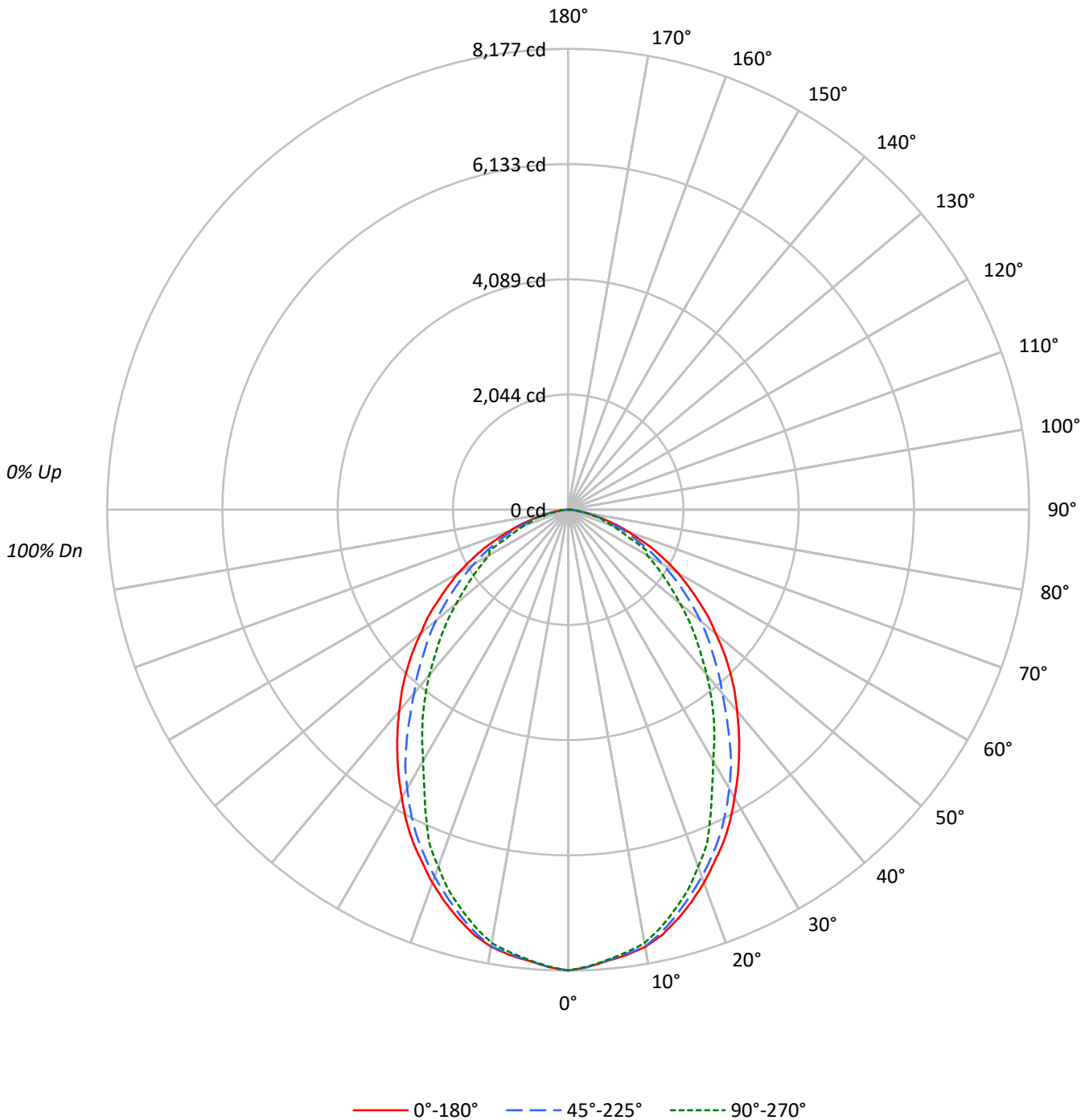
Lumens per Lamp: N/A  
Luminaire Lumens: 16053.0 lumens  
Efficiency: N/A  
Efficacy: 92.9 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 172.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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	50	30	10	0																
RCR																																														
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100									100																			
1	110	106	102	99	108	104	100	97	100	97	94	96	94	91	92	90	89	87									87																			
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	75									75																			
3	93	84	77	71	91	82	76	70	79	74	69	77	72	68	74	70	67	65									65																			
4	86	75	67	61	84	74	66	61	72	65	60	69	64	59	67	62	58	56									56																			
5	80	68	60	54	78	67	59	53	65	58	53	63	57	52	61	56	52	50									50																			
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44									44																			
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40									40																			
8	65	52	44	38	63	51	44	38	50	43	38	49	42	38	48	42	38	36									36																			
9	61	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	33									33																			
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30									30																			

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

	0°	45°	90°
0°	11002	11002	11002
5°	10853	10840	10827
10°	10759	10746	10668
15°	10469	10363	10218
20°	10084	9922	9651
25°	9670	9459	8870
30°	9165	8871	7990
35°	8680	8199	7391
40°	8186	7472	6725
45°	7717	6907	6080
50°	7143	6411	5422
55°	6608	5810	4856
60°	6054	5190	4350
65°	5327	4545	3852
70°	4388	3979	3273
75°	3489	3047	3195
80°	2344	2197	2051
85°	1459	1751	2042

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7717 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	761.2	4.7
10°-20°	2089.0	13.0
20°-30°	2892.1	18.0
30°-40°	3083.8	19.2
40°-50°	2813.3	17.5
50°-60°	2204.0	13.7
60°-70°	1436.5	8.9
70°-80°	636.4	4.0
80°-90°	136.6	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°	5742.3	35.8
0°-40°	8826.1	55.0
0°-60°	13843.5	86.2
0°-90°	16053.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	16053.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	8177	8177	8177	8177	8177	
5°	8035	8026	8026	8016	8016	763
15°	7515	7515	7440	7364	7336	2113
25°	6513	6476	6372	6145	5974	2990
35°	5284	5247	4991	4613	4500	3304
45°	4056	3970	3630	3328	3195	3124
55°	2817	2732	2477	2184	2070	2527
65°	1673	1579	1428	1456	1210	1649
75°	671	624	586	558	614	719
85°	94	104	113	123	132	131
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	8177.2	8177.2	8177.2	8177.2	8177.2
2.5°	8120.5	8120.5	8120.5	8111.0	8111.0
5°	8035.4	8025.9	8025.9	8016.5	8016.5
7.5°	7969.2	7959.8	7950.3	7940.8	7921.9
10°	7874.7	7874.7	7865.2	7818.0	7808.5
12.5°	7723.4	7714.0	7676.2	7610.0	7591.1
15°	7515.4	7515.4	7439.8	7364.2	7335.8
17.5°	7288.6	7279.1	7184.6	7109.0	7071.1
20°	7042.8	7023.9	6929.3	6806.4	6740.3
22.5°	6768.6	6768.6	6655.2	6494.5	6428.3
25°	6513.4	6475.6	6371.6	6144.7	5974.5
27.5°	6220.3	6163.6	6050.2	5728.8	5530.2
30°	5898.9	5870.6	5709.8	5293.9	5142.6
32.5°	5596.4	5549.1	5379.0	4944.1	4821.2
35°	5284.4	5246.6	4991.4	4613.3	4499.8
37.5°	4972.5	4925.2	4603.8	4301.3	4159.5
40°	4660.5	4603.8	4254.0	3979.9	3828.6
42.5°	4367.5	4291.8	3951.5	3658.5	3488.3
45°	4055.5	3970.4	3630.1	3327.6	3195.2
47.5°	3743.5	3667.9	3356.0	3044.0	2892.7
50°	3412.7	3346.5	3062.9	2750.9	2590.2
52.5°	3138.5	3034.5	2760.4	2448.4	2316.1
55°	2817.1	2732.0	2476.8	2183.7	2070.3
57.5°	2524.1	2439.0	2202.6	1928.5	1834.0
60°	2249.9	2127.0	1928.5	1692.2	1616.5
62.5°	1947.4	1852.9	1682.7	1484.2	1578.7
65°	1673.3	1578.7	1427.5	1455.8	1210.0
67.5°	1370.7	1323.5	1191.1	1058.8	1021.0
70°	1115.5	1058.8	1011.5	869.7	831.9
72.5°	888.6	831.9	765.7	690.1	661.7
75°	671.2	623.9	586.1	557.8	614.5
77.5°	463.2	444.3	415.9	387.6	378.1
80°	302.5	293.1	283.6	274.1	264.7
82.5°	179.6	179.6	179.6	179.6	179.6
85°	94.5	104.0	113.4	122.9	132.3
87.5°	56.7	56.7	66.2	75.6	85.1
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)