

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: P590511

Luminaire Tested: FSR-24-2-LD4-3HI-50-UNV-93-86-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590511  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/8/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: FAIL-SAFE  
Catalog Number: FSR-24-2-LD4-3HI-50-UNV-93-86-EDD  
Description: 2X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

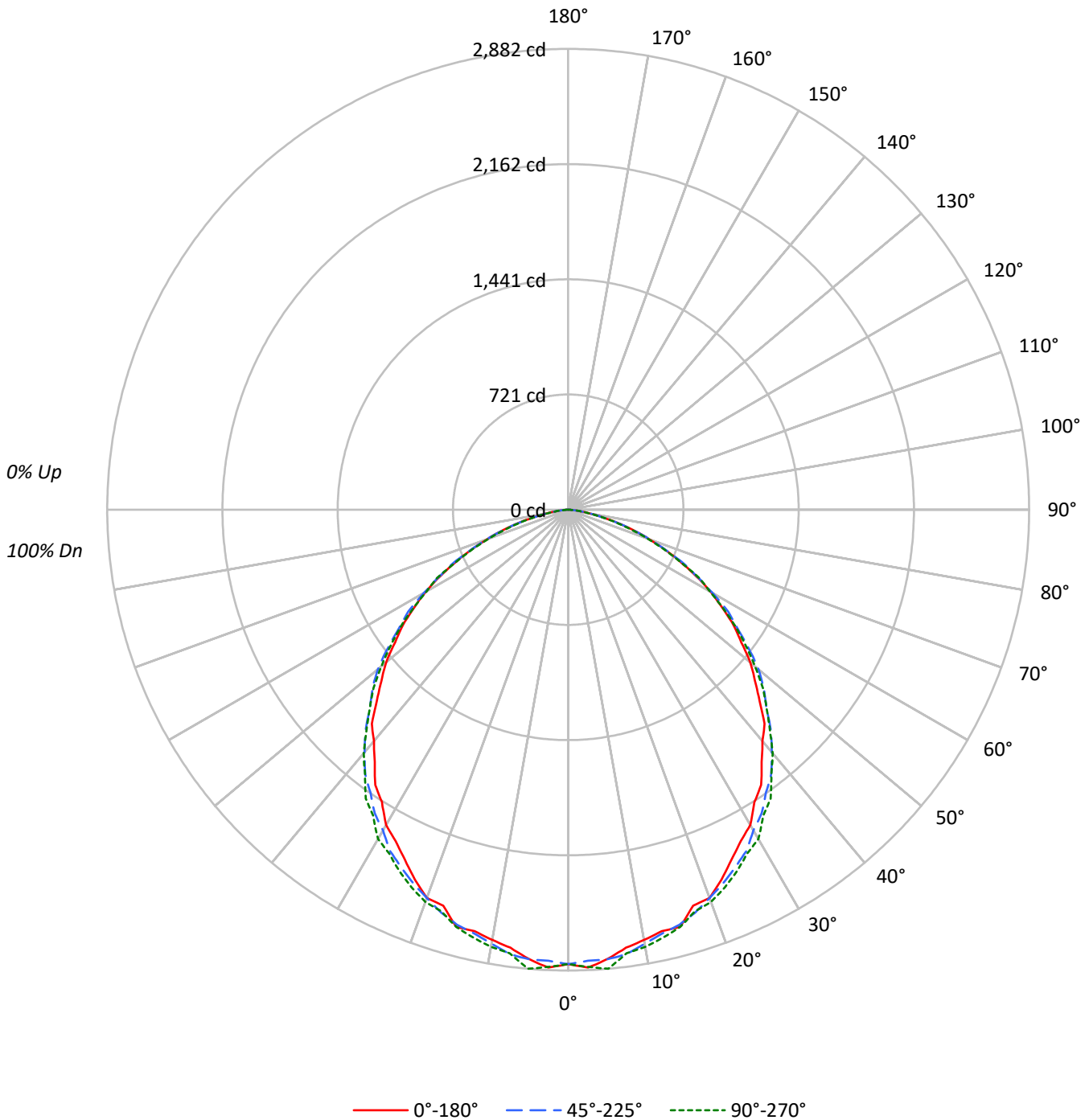
Lumens per Lamp: N/A  
Luminaire Lumens: 7161.0 lumens  
Efficiency: N/A  
Efficacy: 110.5 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 64.8  
Input Voltage (V):  
Input Current (Ain): NR  
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	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	110	105	101	98	107	103	100	96	99	96	93	95	93	90	91	90	88					86				
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	75					73				
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64					62				
4	84	73	64	58	82	71	64	58	69	62	57	67	61	56	65	59	55					53				
5	78	65	57	50	76	64	56	50	62	55	49	60	54	49	58	53	48					46				
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43					41				
7	67	53	45	39	65	53	45	39	51	44	39	50	43	38	48	42	38					36				
8	62	49	41	35	61	48	40	35	47	40	34	46	39	34	44	39	34					32				
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31					29				
10	54	41	34	29	53	41	33	28	40	33	28	39	33	28	38	32	28					26				

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

	0°	45°	90°
0°	7646	7646	7646
5°	7621	7623	7784
10°	7466	7531	7584
15°	7525	7484	7526
20°	7398	7398	7477
25°	7171	7327	7408
30°	7072	7196	7388
35°	6906	7086	7245
40°	6637	6956	6987
45°	6436	6665	6675
50°	6225	6506	6381
55°	5931	6047	6003
60°	5546	5602	5501
65°	4945	5071	4910
70°	4243	4257	4139
75°	3360	3353	3223
80°	2252	2188	2103
85°	1223	1213	1133

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 6837 cd/sqm

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	267.3	3.7
10°-20°	757.5	10.6
20°-30°	1134.8	15.8
30°-40°	1345.0	18.8
40°-50°	1347.5	18.8
50°-60°	1143.8	16.0
60°-70°	771.2	10.8
70°-80°	338.9	4.7
80°-90°	55.1	0.8
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°	2159.6	30.2
0°-40°	3504.6	48.9
0°-60°	5995.9	83.7
0°-90°	7161.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7161.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2841	2841	2841	2841	2841	
5°	2821	2814	2822	2814	2882	266
15°	2701	2670	2686	2700	2702	753
25°	2415	2428	2468	2500	2495	1116
35°	2102	2108	2157	2207	2206	1305
45°	1691	1723	1751	1796	1754	1308
55°	1264	1256	1289	1280	1280	1125
65°	777	766	796	766	771	772
75°	323	317	322	300	310	346
85°	40	38	39	38	37	57
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2841.3	2841.3	2841.3	2841.3	2841.3
2.5°	2865.9	2844.2	2824.1	2847.5	2861.8
5°	2821.1	2814.5	2822.2	2813.8	2881.7
7.5°	2763.2	2788.5	2803.2	2794.0	2798.0
10°	2732.3	2723.5	2756.2	2778.9	2775.6
12.5°	2699.3	2712.5	2714.4	2739.0	2741.2
15°	2701.2	2670.0	2686.5	2700.4	2701.5
17.5°	2596.2	2630.0	2641.4	2673.3	2633.7
20°	2583.4	2558.8	2583.4	2616.1	2610.9
22.5°	2504.5	2477.0	2529.8	2558.8	2557.0
25°	2415.0	2428.2	2467.8	2500.1	2495.0
27.5°	2336.5	2351.9	2408.4	2452.8	2424.2
30°	2276.0	2268.3	2316.0	2355.6	2377.6
32.5°	2167.8	2195.6	2251.4	2290.7	2269.7
35°	2102.1	2108.3	2157.1	2207.0	2205.5
37.5°	1987.3	2016.2	2084.8	2098.8	2085.9
40°	1889.3	1918.3	1980.3	1995.3	1989.1
42.5°	1817.0	1822.2	1875.4	1892.6	1865.1
45°	1691.2	1722.8	1751.4	1796.5	1753.9
47.5°	1584.1	1598.8	1660.4	1672.5	1650.1
50°	1486.9	1492.0	1554.0	1539.0	1524.3
52.5°	1364.7	1386.4	1421.2	1418.3	1401.0
55°	1264.2	1255.7	1288.8	1280.0	1279.6
57.5°	1143.5	1158.2	1185.3	1171.4	1149.0
60°	1030.5	1030.9	1040.8	1025.0	1022.1
62.5°	904.7	909.1	911.3	891.8	923.4
65°	776.6	766.4	796.4	766.0	771.1
67.5°	658.9	664.0	661.1	642.0	649.3
70°	539.3	545.9	541.1	519.5	526.1
72.5°	430.0	421.9	427.0	399.9	412.3
75°	323.2	316.6	322.5	299.7	310.0
77.5°	220.1	225.2	221.6	209.5	216.4
80°	145.3	141.2	141.2	134.3	135.7
82.5°	84.7	80.7	79.6	77.4	80.7
85°	39.6	38.5	39.3	38.2	36.7
87.5°	14.3	14.7	14.7	13.9	13.2
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)