

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: P590829

Luminaire Tested: FSR-24-2-LD4-4LO-35-UNV-93-84-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590829  
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-LD4-4LO-35-UNV-93-84-EDD  
Description: 2X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

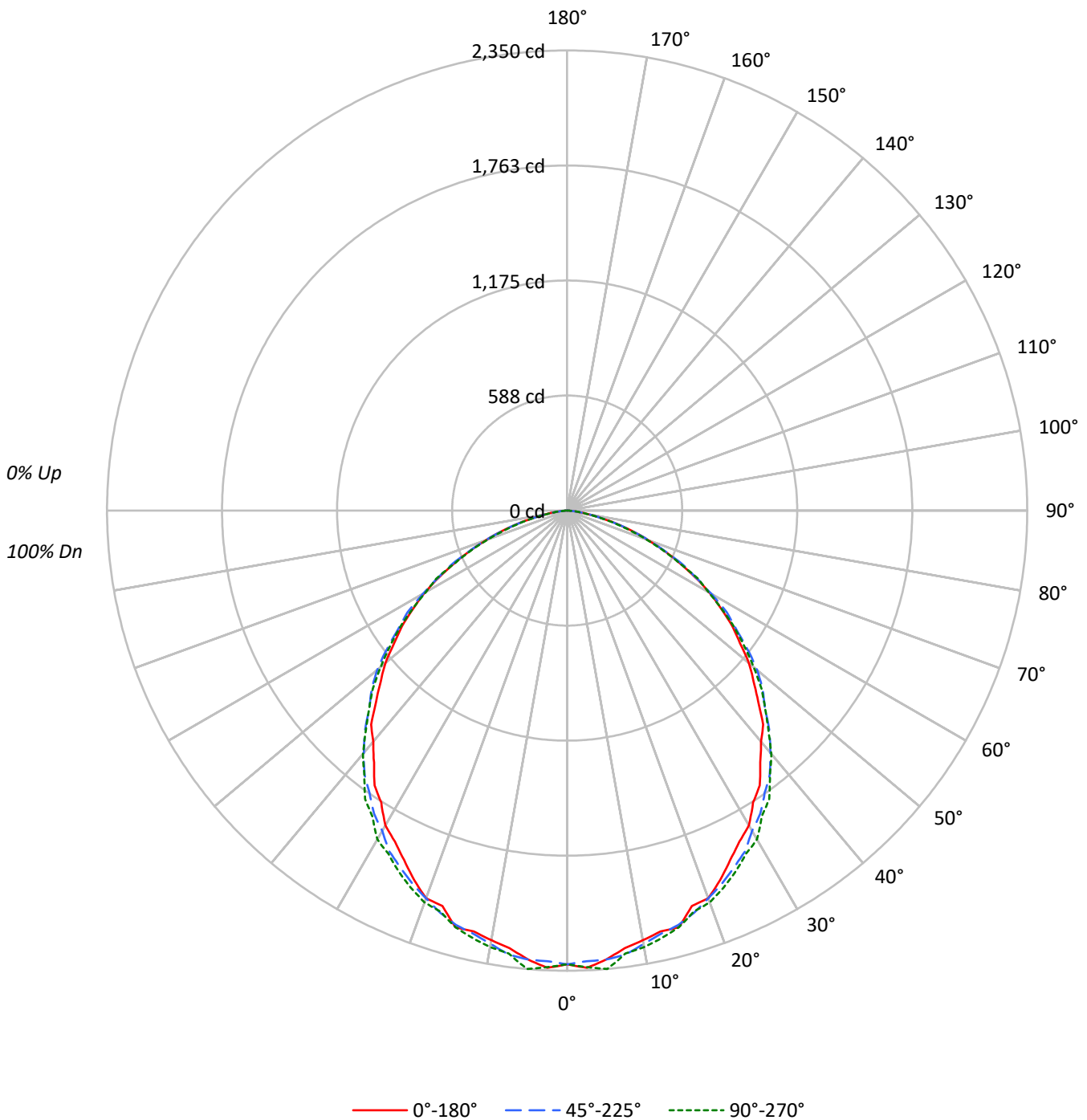
Lumens per Lamp: N/A  
Luminaire Lumens: 5840.0 lumens  
Efficiency: N/A  
Efficacy: 124.8 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 46.8  
Input Voltage (V):  
Input Current (Ain): NR  
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°	6236	6236	6236
5°	6215	6217	6348
10°	6089	6142	6185
15°	6137	6104	6138
20°	6033	6033	6098
25°	5848	5976	6041
30°	5767	5869	6025
35°	5632	5779	5909
40°	5413	5673	5699
45°	5249	5436	5444
50°	5076	5305	5204
55°	4837	4931	4896
60°	4523	4568	4486
65°	4033	4136	4004
70°	3460	3472	3375
75°	2741	2734	2628
80°	1836	1785	1715
85°	997	988	923

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 5576 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	218.0	3.7
10°-20°	617.7	10.6
20°-30°	925.5	15.8
30°-40°	1096.9	18.8
40°-50°	1098.9	18.8
50°-60°	932.8	16.0
60°-70°	628.9	10.8
70°-80°	276.3	4.7
80°-90°	44.9	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°	1761.2	30.2
0°-40°	2858.1	48.9
0°-60°	4889.8	83.7
0°-90°	5840.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5840.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2317	2317	2317	2317	2317	
5°	2301	2295	2302	2295	2350	217
15°	2203	2177	2191	2202	2203	614
25°	1970	1980	2013	2039	2035	911
35°	1714	1719	1759	1800	1799	1064
45°	1379	1405	1428	1465	1430	1067
55°	1031	1024	1051	1044	1044	917
65°	633	625	650	625	629	630
75°	264	258	263	244	253	282
85°	32	31	32	31	30	47
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2317.2	2317.2	2317.2	2317.2	2317.2
2.5°	2337.2	2319.6	2303.1	2322.3	2333.9
5°	2300.7	2295.3	2301.6	2294.7	2350.1
7.5°	2253.4	2274.1	2286.0	2278.6	2281.9
10°	2228.3	2221.1	2247.8	2266.3	2263.6
12.5°	2201.4	2212.2	2213.6	2233.7	2235.5
15°	2202.9	2177.4	2190.9	2202.3	2203.2
17.5°	2117.3	2144.8	2154.1	2180.1	2147.8
20°	2106.8	2086.8	2106.8	2133.5	2129.3
22.5°	2042.5	2020.1	2063.2	2086.8	2085.3
25°	1969.5	1980.3	2012.6	2038.9	2034.7
27.5°	1905.5	1918.1	1964.1	2000.3	1977.0
30°	1856.1	1849.8	1888.7	1921.0	1939.0
32.5°	1767.9	1790.6	1836.1	1868.1	1851.0
35°	1714.3	1719.4	1759.2	1799.9	1798.7
37.5°	1620.7	1644.3	1700.3	1711.6	1701.1
40°	1540.8	1564.4	1615.0	1627.3	1622.2
42.5°	1481.8	1486.0	1529.4	1543.5	1521.0
45°	1379.2	1405.0	1428.3	1465.1	1430.4
47.5°	1291.9	1303.8	1354.1	1364.0	1345.7
50°	1212.6	1216.8	1267.3	1255.1	1243.1
52.5°	1113.0	1130.6	1159.0	1156.6	1142.6
55°	1031.0	1024.1	1051.0	1043.8	1043.5
57.5°	932.6	944.5	966.7	955.3	937.0
60°	840.4	840.7	848.8	835.9	833.5
62.5°	737.8	741.4	743.2	727.3	753.0
65°	633.4	625.0	649.5	624.7	628.9
67.5°	537.3	541.5	539.1	523.6	529.6
70°	439.8	445.2	441.3	423.6	429.0
72.5°	350.6	344.1	348.2	326.1	336.3
75°	263.6	258.2	263.0	244.4	252.8
77.5°	179.5	183.7	180.7	170.8	176.5
80°	118.5	115.2	115.2	109.5	110.7
82.5°	69.1	65.8	64.9	63.1	65.8
85°	32.3	31.4	32.0	31.1	29.9
87.5°	11.7	12.0	12.0	11.4	10.8
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)