

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: P590823

Luminaire Tested: FSR-24-2-LD4-4LO-35-UNV-82-86-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590823  
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-82-86-EDD  
Description: 2X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SI  
LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

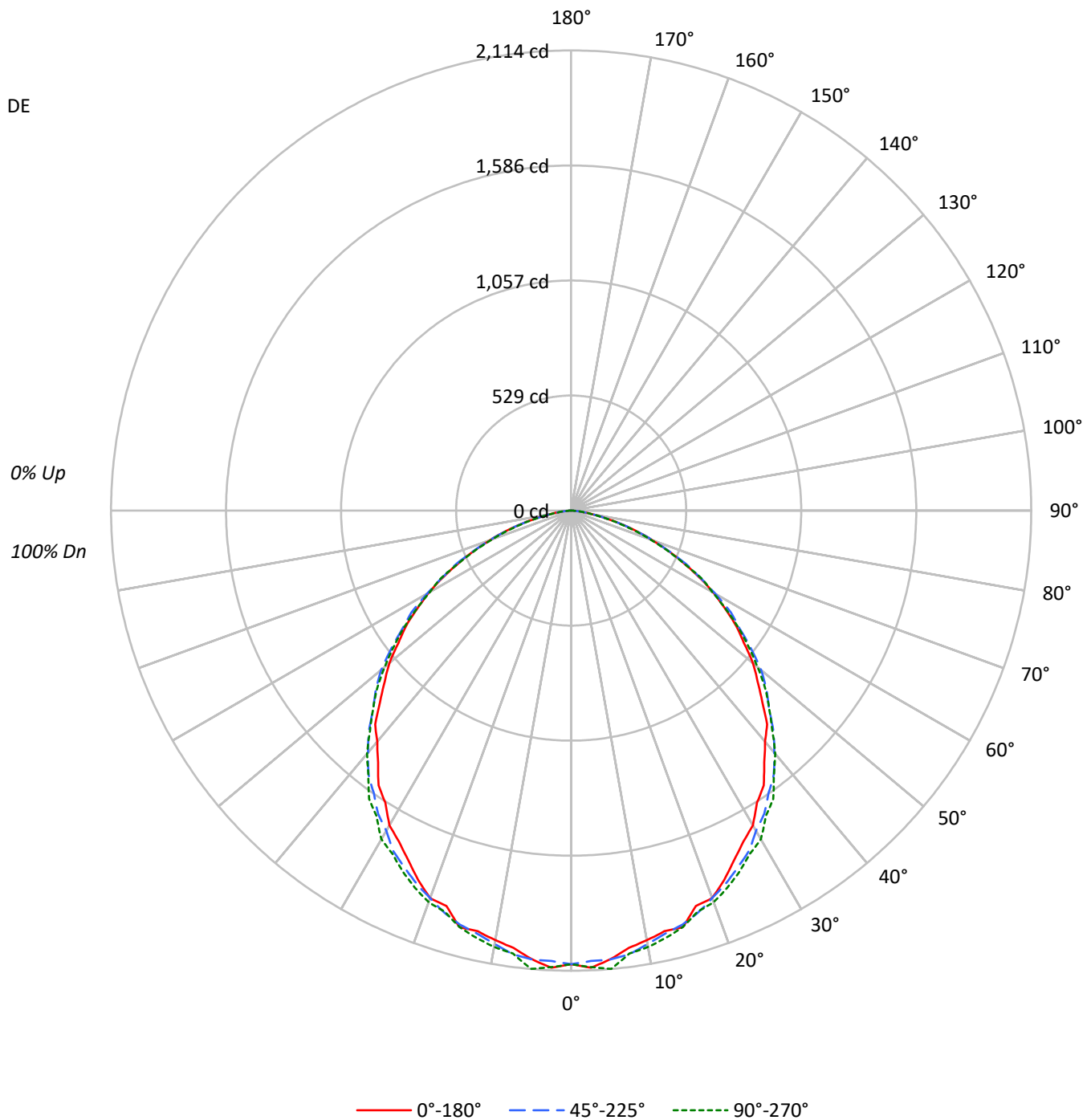
Lumens per Lamp: N/A  
Luminaire Lumens: 5252.0 lumens  
Efficiency: N/A  
Efficacy: 112.2 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 46.8  
Input Voltage (V):  
Input Current (Ain): NR  
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	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	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°	5608	5608	5608
5°	5589	5591	5709
10°	5476	5523	5563
15°	5519	5489	5520
20°	5426	5426	5484
25°	5259	5374	5433
30°	5187	5278	5418
35°	5065	5197	5314
40°	4868	5102	5125
45°	4720	4888	4896
50°	4565	4771	4680
55°	4350	4434	4403
60°	4068	4108	4034
65°	3627	3719	3601
70°	3112	3123	3035
75°	2464	2459	2364
80°	1650	1605	1543
85°	898	889	831

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 5014 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	196.0	3.7
10°-20°	555.5	10.6
20°-30°	832.3	15.8
30°-40°	986.5	18.8
40°-50°	988.3	18.8
50°-60°	838.9	16.0
60°-70°	565.6	10.8
70°-80°	248.5	4.7
80°-90°	40.4	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°	1583.9	30.2
0°-40°	2570.3	48.9
0°-60°	4397.5	83.7
0°-90°	5252.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5252.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2084	2084	2084	2084	2084	
5°	2069	2064	2070	2064	2114	195
15°	1981	1958	1970	1980	1981	552
25°	1771	1781	1810	1834	1830	819
35°	1542	1546	1582	1619	1618	957
45°	1240	1264	1284	1318	1286	959
55°	927	921	945	939	938	825
65°	570	562	584	562	566	566
75°	237	232	236	220	227	254
85°	29	28	29	28	27	42
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2083.9	2083.9	2083.9	2083.9	2083.9
2.5°	2101.9	2086.0	2071.2	2088.4	2098.9
5°	2069.1	2064.2	2069.9	2063.7	2113.5
7.5°	2026.6	2045.1	2055.9	2049.2	2052.1
10°	2004.0	1997.5	2021.4	2038.1	2035.7
12.5°	1979.7	1989.4	1990.8	2008.8	2010.4
15°	1981.1	1958.2	1970.3	1980.5	1981.3
17.5°	1904.1	1928.9	1937.2	1960.6	1931.6
20°	1894.7	1876.7	1894.7	1918.7	1914.9
22.5°	1836.9	1816.7	1855.4	1876.7	1875.3
25°	1771.2	1780.9	1810.0	1833.6	1829.9
27.5°	1713.6	1724.9	1766.4	1798.9	1777.9
30°	1669.2	1663.6	1698.6	1727.6	1743.8
32.5°	1589.9	1610.3	1651.2	1680.0	1664.7
35°	1541.7	1546.3	1582.1	1618.7	1617.6
37.5°	1457.5	1478.7	1529.1	1539.3	1529.9
40°	1385.7	1406.9	1452.4	1463.4	1458.8
42.5°	1332.6	1336.4	1375.4	1388.1	1367.9
45°	1240.4	1263.5	1284.5	1317.6	1286.4
47.5°	1161.8	1172.6	1217.8	1226.6	1210.2
50°	1090.5	1094.3	1139.7	1128.7	1117.9
52.5°	1000.9	1016.8	1042.3	1040.2	1027.5
55°	927.2	921.0	945.2	938.7	938.5
57.5°	838.7	849.4	869.3	859.1	842.7
60°	755.8	756.1	763.3	751.8	749.6
62.5°	663.5	666.7	668.3	654.1	677.2
65°	569.6	562.1	584.1	561.8	565.6
67.5°	483.2	487.0	484.8	470.9	476.2
70°	395.5	400.4	396.9	381.0	385.8
72.5°	315.3	309.4	313.2	293.3	302.4
75°	237.0	232.2	236.5	219.8	227.4
77.5°	161.4	165.2	162.5	153.6	158.7
80°	106.5	103.6	103.6	98.5	99.6
82.5°	62.2	59.2	58.4	56.8	59.2
85°	29.1	28.3	28.8	28.0	26.9
87.5°	10.5	10.8	10.8	10.2	9.7
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)