

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: P590165

Luminaire Tested: FSR-24-2-LD4-2HI-40-UNV-80-84-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590165  
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-LD4-2HI-40-UNV-80-84-EDD  
Description: 2X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .125 CLEAR PC ENVIRON  
SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

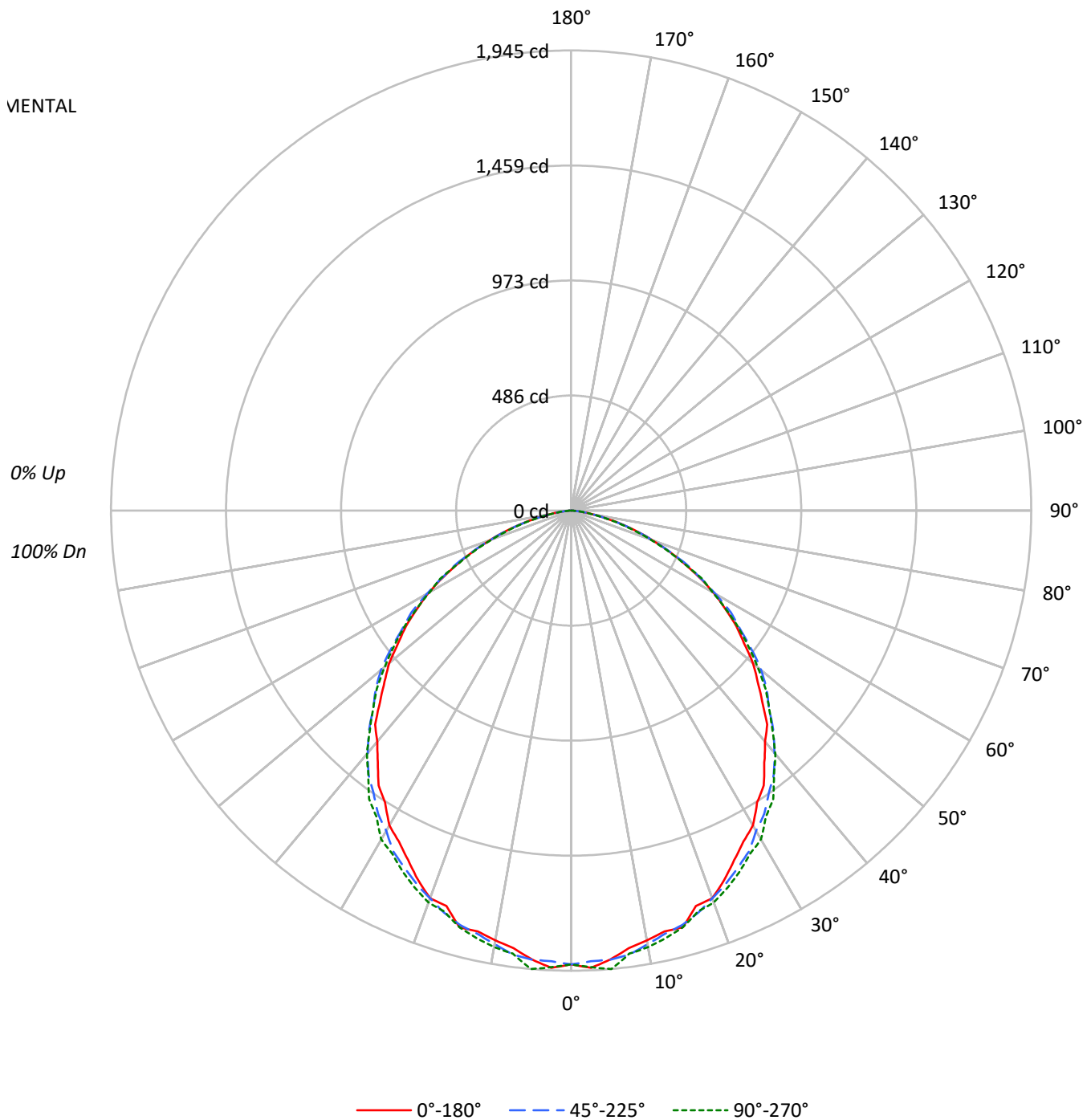
Lumens per Lamp: N/A  
Luminaire Lumens: 4834.0 lumens  
Efficiency: N/A  
Efficacy: 111.9 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 43.2  
Input Voltage (V):  
Input Current (Ain): NR  
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



TEST NUMBER: P590165

CATALOG NUMBER: FSR-24-2-LD4-2HI-40-UNV-80-84-EDD

### Luminous Intensity Polar Plot



TEST NUMBER: P590165

CATALOG NUMBER: FSR-24-2-LD4-2HI-40-UNV-80-84-EDD

**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°	5161	5161	5161
5°	5144	5146	5255
10°	5040	5084	5120
15°	5080	5052	5081
20°	4994	4994	5047
25°	4840	4946	5001
30°	4774	4858	4987
35°	4662	4784	4891
40°	4480	4696	4717
45°	4344	4499	4506
50°	4202	4392	4308
55°	4004	4082	4053
60°	3744	3781	3713
65°	3338	3423	3314
70°	2864	2874	2794
75°	2269	2263	2176
80°	1520	1477	1420
85°	824	818	766

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 4615 cd/sqm



TEST NUMBER: P590165

CATALOG NUMBER: FSR-24-2-LD4-2HI-40-UNV-80-84-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	180.4	3.7
10°-20°	511.3	10.6
20°-30°	766.1	15.8
30°-40°	908.0	18.8
40°-50°	909.6	18.8
50°-60°	772.1	16.0
60°-70°	520.6	10.8
70°-80°	228.7	4.7
80°-90°	37.2	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°	1457.8	30.2
0°-40°	2365.8	48.9
0°-60°	4047.5	83.7
0°-90°	4834.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4834.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1918	1918	1918	1918	1918	
5°	1904	1900	1905	1899	1945	180
15°	1823	1802	1814	1823	1824	508
25°	1630	1639	1666	1688	1684	754
35°	1419	1423	1456	1490	1489	881
45°	1142	1163	1182	1213	1184	883
55°	853	848	870	864	864	759
65°	524	517	538	517	520	521
75°	218	214	218	202	209	234
85°	27	26	26	26	25	39
90°	0	0	0	0	0	



TEST NUMBER: P590165

CATALOG NUMBER: FSR-24-2-LD4-2HI-40-UNV-80-84-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1918.0	1918.0	1918.0	1918.0	1918.0
2.5°	1934.6	1920.0	1906.4	1922.2	1931.9
5°	1904.4	1899.9	1905.1	1899.4	1945.3
7.5°	1865.3	1882.3	1892.3	1886.1	1888.8
10°	1844.5	1838.5	1860.6	1875.9	1873.7
12.5°	1822.2	1831.1	1832.3	1848.9	1850.4
15°	1823.4	1802.4	1813.5	1822.9	1823.7
17.5°	1752.6	1775.4	1783.0	1804.6	1777.8
20°	1743.9	1727.3	1743.9	1766.0	1762.5
22.5°	1690.7	1672.1	1707.8	1727.3	1726.1
25°	1630.2	1639.2	1665.9	1687.7	1684.2
27.5°	1577.2	1587.7	1625.8	1655.8	1636.4
30°	1536.4	1531.2	1563.4	1590.1	1605.0
32.5°	1463.3	1482.2	1519.8	1546.3	1532.2
35°	1419.0	1423.2	1456.2	1489.8	1488.8
37.5°	1341.5	1361.1	1407.4	1416.8	1408.1
40°	1275.4	1294.9	1336.8	1346.9	1342.7
42.5°	1226.6	1230.1	1266.0	1277.6	1259.0
45°	1141.6	1162.9	1182.3	1212.7	1184.0
47.5°	1069.3	1079.2	1120.8	1129.0	1113.9
50°	1003.7	1007.2	1049.0	1038.9	1029.0
52.5°	921.2	935.8	959.4	957.4	945.8
55°	853.4	847.7	870.0	864.0	863.8
57.5°	771.9	781.8	800.1	790.7	775.6
60°	695.6	695.9	702.6	691.9	689.9
62.5°	610.7	613.7	615.1	602.0	623.3
65°	524.3	517.3	537.6	517.1	520.5
67.5°	444.8	448.2	446.3	433.4	438.3
70°	364.0	368.5	365.3	350.7	355.1
72.5°	290.2	284.8	288.3	269.9	278.4
75°	218.2	213.7	217.7	202.3	209.3
77.5°	148.6	152.1	149.6	141.4	146.1
80°	98.1	95.3	95.3	90.6	91.6
82.5°	57.2	54.5	53.7	52.3	54.5
85°	26.7	26.0	26.5	25.8	24.8
87.5°	9.7	9.9	9.9	9.4	8.9
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)