

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: P590845

Luminaire Tested: FSR-24-2-LD4-4LO-40-UNV-81-84-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590845  
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-40-UNV-81-84-EDD  
Description: 2X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI  
LENSES WITH, 80 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

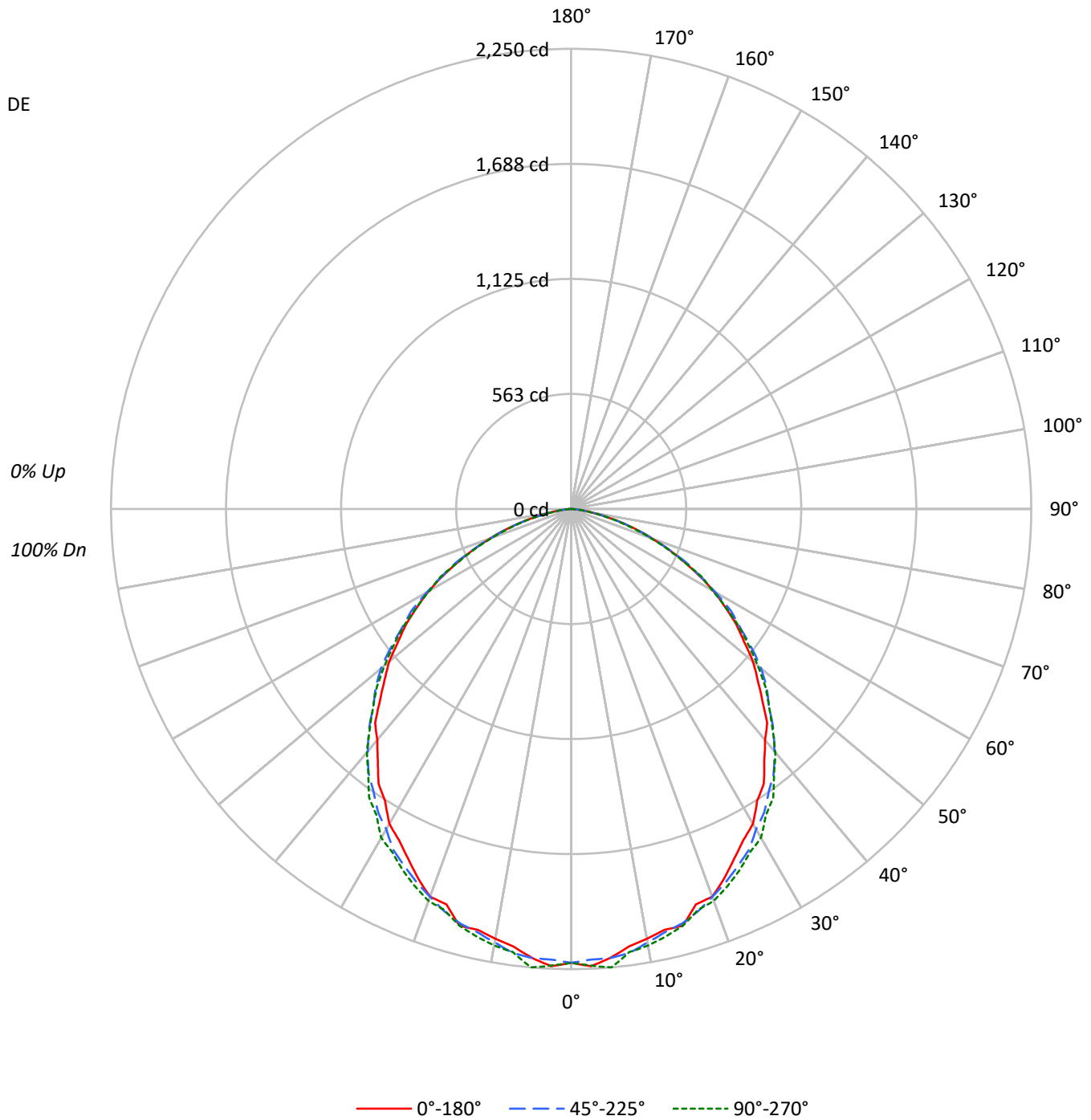
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5592.0 lumens  
Efficiency: N/A  
Efficacy: 119.5 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): 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



TEST NUMBER: P590845  
CATALOG NUMBER: FSR-24-2-LD4-4LO-40-UNV-81-84-EDD

### Luminous Intensity Polar Plot





TEST NUMBER: P590845

CATALOG NUMBER: FSR-24-2-LD4-4LO-40-UNV-81-84-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	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°	5971	5971	5971
5°	5951	5953	6079
10°	5830	5881	5923
15°	5876	5845	5877
20°	5777	5777	5839
25°	5600	5722	5785
30°	5523	5620	5769
35°	5392	5534	5658
40°	5183	5432	5456
45°	5026	5205	5212
50°	4861	5080	4983
55°	4632	4722	4688
60°	4331	4374	4295
65°	3862	3960	3834
70°	3313	3325	3232
75°	2624	2618	2517
80°	1757	1709	1643
85°	954	948	883

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 5339 cd/sqm



TEST NUMBER: P590845

CATALOG NUMBER: FSR-24-2-LD4-4LO-40-UNV-81-84-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	208.7	3.7
10°-20°	591.5	10.6
20°-30°	886.2	15.8
30°-40°	1050.3	18.8
40°-50°	1052.3	18.8
50°-60°	893.2	16.0
60°-70°	602.2	10.8
70°-80°	264.6	4.7
80°-90°	43.0	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°	1686.4	30.2
0°-40°	2736.7	48.9
0°-60°	4682.2	83.7
0°-90°	5592.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5592.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2219	2219	2219	2219	2219	
5°	2203	2198	2204	2197	2250	208
15°	2109	2085	2098	2109	2110	588
25°	1886	1896	1927	1952	1948	872
35°	1642	1646	1684	1723	1722	1019
45°	1321	1345	1368	1403	1370	1022
55°	987	981	1006	1000	999	878
65°	606	598	622	598	602	603
75°	252	247	252	234	242	270
85°	31	30	31	30	29	45
90°	0	0	0	0	0	



TEST NUMBER: P590845

CATALOG NUMBER: FSR-24-2-LD4-4LO-40-UNV-81-84-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2218.8	2218.8	2218.8	2218.8	2218.8
2.5°	2238.0	2221.1	2205.3	2223.6	2234.8
5°	2203.0	2197.9	2203.9	2197.3	2250.3
7.5°	2157.7	2177.5	2189.0	2181.8	2185.0
10°	2133.7	2126.8	2152.3	2170.1	2167.5
12.5°	2107.9	2118.2	2119.6	2138.8	2140.6
15°	2109.3	2085.0	2097.9	2108.8	2109.6
17.5°	2027.4	2053.8	2062.6	2087.6	2056.6
20°	2017.4	1998.2	2017.4	2042.9	2038.9
22.5°	1955.8	1934.3	1975.5	1998.2	1996.7
25°	1885.9	1896.2	1927.1	1952.3	1948.3
27.5°	1824.6	1836.6	1880.7	1915.4	1893.0
30°	1777.3	1771.3	1808.5	1839.5	1856.7
32.5°	1692.8	1714.6	1758.1	1788.8	1772.4
35°	1641.5	1646.4	1684.5	1723.4	1722.3
37.5°	1551.8	1574.5	1628.0	1638.9	1628.9
40°	1475.4	1498.0	1546.4	1558.1	1553.3
42.5°	1418.9	1422.9	1464.5	1477.9	1456.4
45°	1320.7	1345.3	1367.6	1402.9	1369.6
47.5°	1237.0	1248.5	1296.6	1306.0	1288.6
50°	1161.1	1165.1	1213.5	1201.8	1190.3
52.5°	1065.7	1082.6	1109.8	1107.5	1094.1
55°	987.2	980.6	1006.4	999.5	999.2
57.5°	892.9	904.4	925.6	914.7	897.2
60°	804.7	805.0	812.7	800.4	798.1
62.5°	706.5	709.9	711.6	696.4	721.1
65°	606.5	598.5	621.9	598.2	602.2
67.5°	514.5	518.5	516.2	501.3	507.1
70°	421.1	426.3	422.6	405.7	410.8
72.5°	335.8	329.4	333.5	312.3	322.0
75°	252.4	247.2	251.8	234.1	242.1
77.5°	171.9	175.9	173.0	163.6	169.0
80°	113.4	110.3	110.3	104.9	106.0
82.5°	66.2	63.0	62.2	60.4	63.0
85°	30.9	30.1	30.7	29.8	28.6
87.5°	11.2	11.5	11.5	10.9	10.3
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)