

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: P561708

Luminaire Tested: FSR-12-4-LD4-2LO-50-UNV-93-96-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P561708  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-5)  
Test Lab: INNOVATION CENTER  
Issue Date: 7/20/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: FAIL-SAFE  
Catalog Number: FSR-12-4-LD4-2LO-50-UNV-93-96-EDD-90  
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR TEMPER  
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

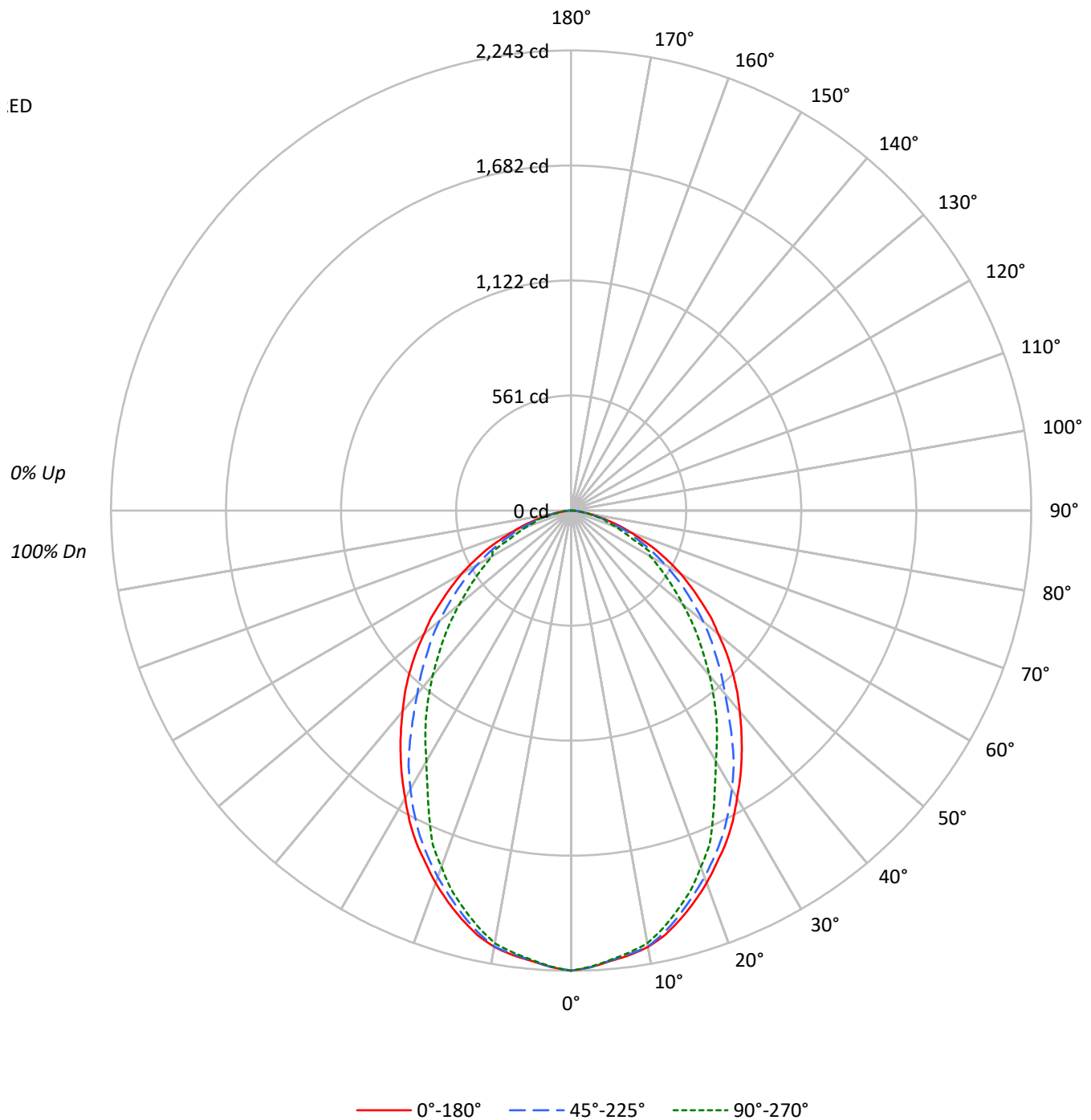
Lumens per Lamp: N/A  
Luminaire Lumens: 4403.0 lumens  
Efficiency: N/A  
Efficacy: 94.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 46.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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: P561708

CATALOG NUMBER: FSR-12-4-LD4-2LO-50-UNV-93-96-EDD-90

### Luminous Intensity Polar Plot





TEST NUMBER: P561708

CATALOG NUMBER: FSR-12-4-LD4-2LO-50-UNV-93-96-EDD-90

**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	0																			
RCR																																														
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																												
1	110	106	102	99	108	104	100	97	100	97	94	96	94	91	92	90	89	87																												
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	75																												
3	93	84	77	71	91	82	76	70	79	74	69	77	72	68	74	70	67	65																												
4	86	75	67	61	84	74	66	61	72	65	60	69	64	59	67	62	58	56																												
5	80	68	60	54	78	67	59	53	65	58	53	63	57	52	61	56	52	50																												
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44																												
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40																												
8	65	52	44	38	63	51	44	38	50	43	38	49	42	38	48	42	38	36																												
9	61	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	33																												
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30																												

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

	0°	45°	90°
0°	6035	6035	6035
5°	5953	5946	5940
10°	5902	5895	5852
15°	5743	5685	5606
20°	5532	5443	5294
25°	5304	5189	4866
30°	5027	4866	4383
35°	4761	4497	4054
40°	4490	4099	3689
45°	4233	3789	3335
50°	3918	3517	2974
55°	3625	3187	2664
60°	3321	2847	2386
65°	2922	2493	2113
70°	2408	2183	1795
75°	1914	1672	1752
80°	1286	1206	1125
85°	800	960	1121

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4233 cd/sqm



TEST NUMBER: P561708

CATALOG NUMBER: FSR-12-4-LD4-2LO-50-UNV-93-96-EDD-90

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	208.8	4.7
10°-20°	573.0	13.0
20°-30°	793.2	18.0
30°-40°	845.8	19.2
40°-50°	771.6	17.5
50°-60°	604.5	13.7
60°-70°	394.0	8.9
70°-80°	174.6	4.0
80°-90°	37.5	0.9
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°	1575.0	35.8
0°-40°	2420.8	55.0
0°-60°	3797.0	86.2
0°-90°	4403.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4403.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2243	2243	2243	2243	2243	
5°	2204	2201	2201	2199	2199	209
15°	2061	2061	2041	2020	2012	579
25°	1786	1776	1748	1685	1639	820
35°	1449	1439	1369	1265	1234	906
45°	1112	1089	996	913	876	857
55°	773	749	679	599	568	693
65°	459	433	392	399	332	452
75°	184	171	161	153	168	197
85°	26	28	31	34	36	36
90°	0	0	0	0	0	



TEST NUMBER: P561708

CATALOG NUMBER: FSR-12-4-LD4-2LO-50-UNV-93-96-EDD-90

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2242.8	2242.8	2242.8	2242.8	2242.8
2.5°	2227.3	2227.3	2227.3	2224.7	2224.7
5°	2203.9	2201.3	2201.3	2198.8	2198.8
7.5°	2185.8	2183.2	2180.6	2178.0	2172.8
10°	2159.9	2159.9	2157.3	2144.3	2141.7
12.5°	2118.4	2115.8	2105.4	2087.3	2082.1
15°	2061.3	2061.3	2040.6	2019.8	2012.1
17.5°	1999.1	1996.5	1970.6	1949.8	1939.5
20°	1931.7	1926.5	1900.6	1866.9	1848.7
22.5°	1856.5	1856.5	1825.4	1781.3	1763.1
25°	1786.5	1776.1	1747.6	1685.4	1638.7
27.5°	1706.1	1690.5	1659.4	1571.3	1516.8
30°	1617.9	1610.2	1566.1	1452.0	1410.5
32.5°	1535.0	1522.0	1475.3	1356.1	1322.4
35°	1449.4	1439.0	1369.0	1265.3	1234.2
37.5°	1363.8	1350.9	1262.7	1179.8	1140.9
40°	1278.3	1262.7	1166.8	1091.6	1050.1
42.5°	1197.9	1177.2	1083.8	1003.4	956.8
45°	1112.3	1089.0	995.7	912.7	876.4
47.5°	1026.8	1006.0	920.5	834.9	793.4
50°	936.0	917.9	840.1	754.5	710.4
52.5°	860.8	832.3	757.1	671.6	635.3
55°	772.7	749.3	679.3	599.0	567.8
57.5°	692.3	669.0	604.1	528.9	503.0
60°	617.1	583.4	528.9	464.1	443.4
62.5°	534.1	508.2	461.5	407.1	433.0
65°	458.9	433.0	391.5	399.3	331.9
67.5°	376.0	363.0	326.7	290.4	280.0
70°	306.0	290.4	277.4	238.5	228.2
72.5°	243.7	228.2	210.0	189.3	181.5
75°	184.1	171.1	160.8	153.0	168.5
77.5°	127.1	121.9	114.1	106.3	103.7
80°	83.0	80.4	77.8	75.2	72.6
82.5°	49.3	49.3	49.3	49.3	49.3
85°	25.9	28.5	31.1	33.7	36.3
87.5°	15.6	15.6	18.2	20.7	23.3
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)