

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: P561646

Luminaire Tested: FSR-12-4-LD4-2LO-40-UNV-93-97-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P561646  
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-40-UNV-93-97-EDD-90  
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER  
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

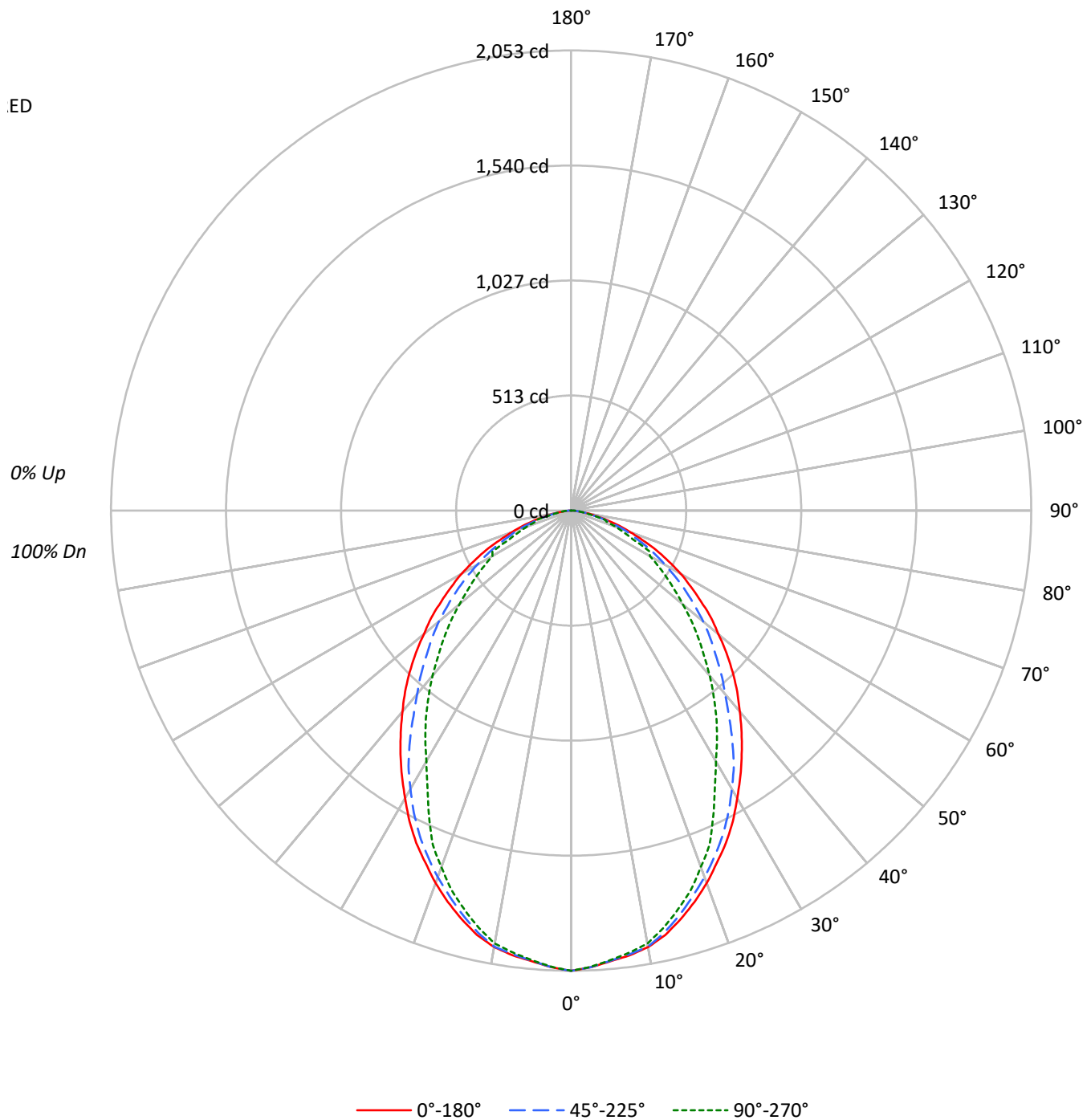
Lumens per Lamp: N/A  
Luminaire Lumens: 4031.0 lumens  
Efficiency: N/A  
Efficacy: 86.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 46.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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



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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	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°	5525	5525	5525
5°	5450	5444	5438
10°	5403	5397	5358
15°	5258	5205	5132
20°	5064	4983	4847
25°	4856	4750	4454
30°	4603	4455	4012
35°	4359	4118	3712
40°	4111	3752	3377
45°	3876	3469	3053
50°	3587	3220	2723
55°	3319	2918	2439
60°	3041	2606	2185
65°	2676	2282	1934
70°	2204	1998	1644
75°	1752	1530	1604
80°	1178	1103	1031
85°	732	880	1025

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3876 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	191.1	4.7
10°-20°	524.6	13.0
20°-30°	726.2	18.0
30°-40°	774.4	19.2
40°-50°	706.4	17.5
50°-60°	553.4	13.7
60°-70°	360.7	8.9
70°-80°	159.8	4.0
80°-90°	34.3	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°	1441.9	35.8
0°-40°	2216.3	55.0
0°-60°	3476.2	86.2
0°-90°	4031.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4031.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2053	2053	2053	2053	2053	
5°	2018	2015	2015	2013	2013	192
15°	1887	1887	1868	1849	1842	531
25°	1636	1626	1600	1543	1500	751
35°	1327	1318	1253	1158	1130	830
45°	1018	997	912	836	802	784
55°	707	686	622	548	520	634
65°	420	396	358	366	304	414
75°	168	157	147	140	154	181
85°	24	26	28	31	33	33
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2053.3	2053.3	2053.3	2053.3	2053.3
2.5°	2039.1	2039.1	2039.1	2036.7	2036.7
5°	2017.7	2015.4	2015.4	2013.0	2013.0
7.5°	2001.1	1998.7	1996.4	1994.0	1989.2
10°	1977.4	1977.4	1975.0	1963.1	1960.8
12.5°	1939.4	1937.0	1927.5	1910.9	1906.2
15°	1887.2	1887.2	1868.2	1849.2	1842.1
17.5°	1830.2	1827.8	1804.1	1785.1	1775.6
20°	1768.5	1763.7	1740.0	1709.1	1692.5
22.5°	1699.6	1699.6	1671.2	1630.8	1614.2
25°	1635.5	1626.1	1599.9	1543.0	1500.2
27.5°	1562.0	1547.7	1519.2	1438.5	1388.7
30°	1481.3	1474.1	1433.8	1329.3	1291.3
32.5°	1405.3	1393.4	1350.7	1241.5	1210.6
35°	1327.0	1317.5	1253.4	1158.4	1129.9
37.5°	1248.6	1236.8	1156.0	1080.1	1044.5
40°	1170.3	1156.0	1068.2	999.4	961.4
42.5°	1096.7	1077.7	992.2	918.7	875.9
45°	1018.4	997.0	911.5	835.6	802.3
47.5°	940.0	921.0	842.7	764.4	726.4
50°	856.9	840.3	769.1	690.8	650.4
52.5°	788.1	762.0	693.1	614.8	581.6
55°	707.4	686.0	621.9	548.3	519.9
57.5°	633.8	612.4	553.1	484.3	460.5
60°	565.0	534.1	484.3	424.9	405.9
62.5°	489.0	465.3	422.5	372.7	396.4
65°	420.2	396.4	358.4	365.6	303.8
67.5°	344.2	332.3	299.1	265.9	256.4
70°	280.1	265.9	254.0	218.4	208.9
72.5°	223.1	208.9	192.3	173.3	166.2
75°	168.5	156.7	147.2	140.1	154.3
77.5°	116.3	111.6	104.4	97.3	95.0
80°	76.0	73.6	71.2	68.8	66.5
82.5°	45.1	45.1	45.1	45.1	45.1
85°	23.7	26.1	28.5	30.9	33.2
87.5°	14.2	14.2	16.6	19.0	21.4
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)