

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: P560996

Luminaire Tested: FSR-12-4-LD4-1LO-35-UNV-93-86-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560996  
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-LD4-1LO-35-UNV-93-86-EDD-90  
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

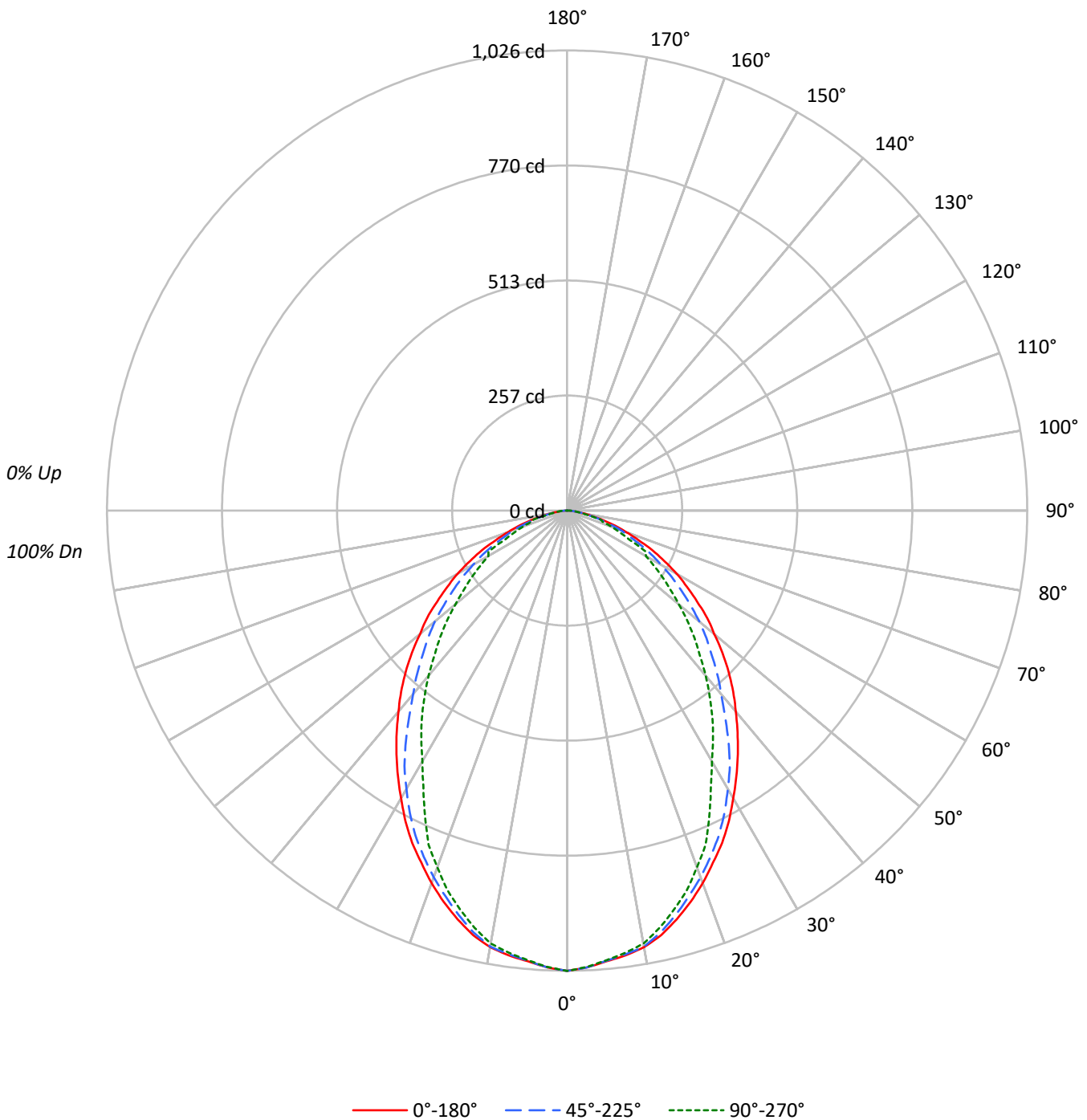
Lumens per Lamp: N/A  
Luminaire Lumens: 2015.0 lumens  
Efficiency: N/A  
Efficacy: 86.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 23.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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	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°	2762	2762	2762
5°	2724	2721	2718
10°	2701	2698	2678
15°	2628	2602	2565
20°	2531	2491	2423
25°	2428	2375	2227
30°	2301	2227	2006
35°	2179	2058	1855
40°	2055	1876	1688
45°	1937	1734	1526
50°	1793	1610	1361
55°	1659	1459	1219
60°	1520	1303	1092
65°	1337	1141	967
70°	1102	999	821
75°	875	765	802
80°	589	552	514
85°	367	438	513

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1937 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	95.5	4.7
10°-20°	262.2	13.0
20°-30°	363.0	18.0
30°-40°	387.1	19.2
40°-50°	353.1	17.5
50°-60°	276.7	13.7
60°-70°	180.3	8.9
70°-80°	79.9	4.0
80°-90°	17.1	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°	720.8	35.8
0°-40°	1107.9	55.0
0°-60°	1737.7	86.2
0°-90°	2015.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2015.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1026	1026	1026	1026	1026	
5°	1009	1007	1007	1006	1006	96
15°	943	943	934	924	921	265
25°	818	813	800	771	750	375
35°	663	659	626	579	565	415
45°	509	498	456	418	401	392
55°	354	343	311	274	260	317
65°	210	198	179	183	152	207
75°	84	78	74	70	77	90
85°	12	13	14	15	17	16
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1026.4	1026.4	1026.4	1026.4	1026.4
2.5°	1019.3	1019.3	1019.3	1018.1	1018.1
5°	1008.6	1007.4	1007.4	1006.2	1006.2
7.5°	1000.3	999.1	997.9	996.7	994.4
10°	988.4	988.4	987.3	981.3	980.1
12.5°	969.5	968.3	963.5	955.2	952.8
15°	943.4	943.4	933.9	924.4	920.8
17.5°	914.9	913.7	901.8	892.3	887.6
20°	884.0	881.6	869.8	854.4	846.0
22.5°	849.6	849.6	835.4	815.2	806.9
25°	817.6	812.8	799.8	771.3	749.9
27.5°	780.8	773.7	759.4	719.1	694.2
30°	740.4	736.9	716.7	664.5	645.5
32.5°	702.5	696.5	675.2	620.6	605.2
35°	663.3	658.6	626.5	579.1	564.8
37.5°	624.2	618.2	577.9	539.9	522.1
40°	585.0	577.9	534.0	499.6	480.6
42.5°	548.2	538.7	496.0	459.2	437.9
45°	509.1	498.4	455.7	417.7	401.1
47.5°	469.9	460.4	421.2	382.1	363.1
50°	428.4	420.1	384.5	345.3	325.1
52.5°	394.0	380.9	346.5	307.3	290.7
55°	353.6	342.9	310.9	274.1	259.9
57.5°	316.8	306.1	276.5	242.1	230.2
60°	282.4	267.0	242.1	212.4	202.9
62.5°	244.4	232.6	211.2	186.3	198.2
65°	210.0	198.2	179.2	182.7	151.9
67.5°	172.1	166.1	149.5	132.9	128.2
70°	140.0	132.9	127.0	109.2	104.4
72.5°	111.5	104.4	96.1	86.6	83.1
75°	84.2	78.3	73.6	70.0	77.1
77.5°	58.1	55.8	52.2	48.7	47.5
80°	38.0	36.8	35.6	34.4	33.2
82.5°	22.5	22.5	22.5	22.5	22.5
85°	11.9	13.1	14.2	15.4	16.6
87.5°	7.1	7.1	8.3	9.5	10.7
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)