

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: P563685

Luminaire Tested: FSR-24-4-LD4-4HI-35-UNV-93-86-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563685  
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-24-4-LD4-4HI-35-UNV-93-86-EDD  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

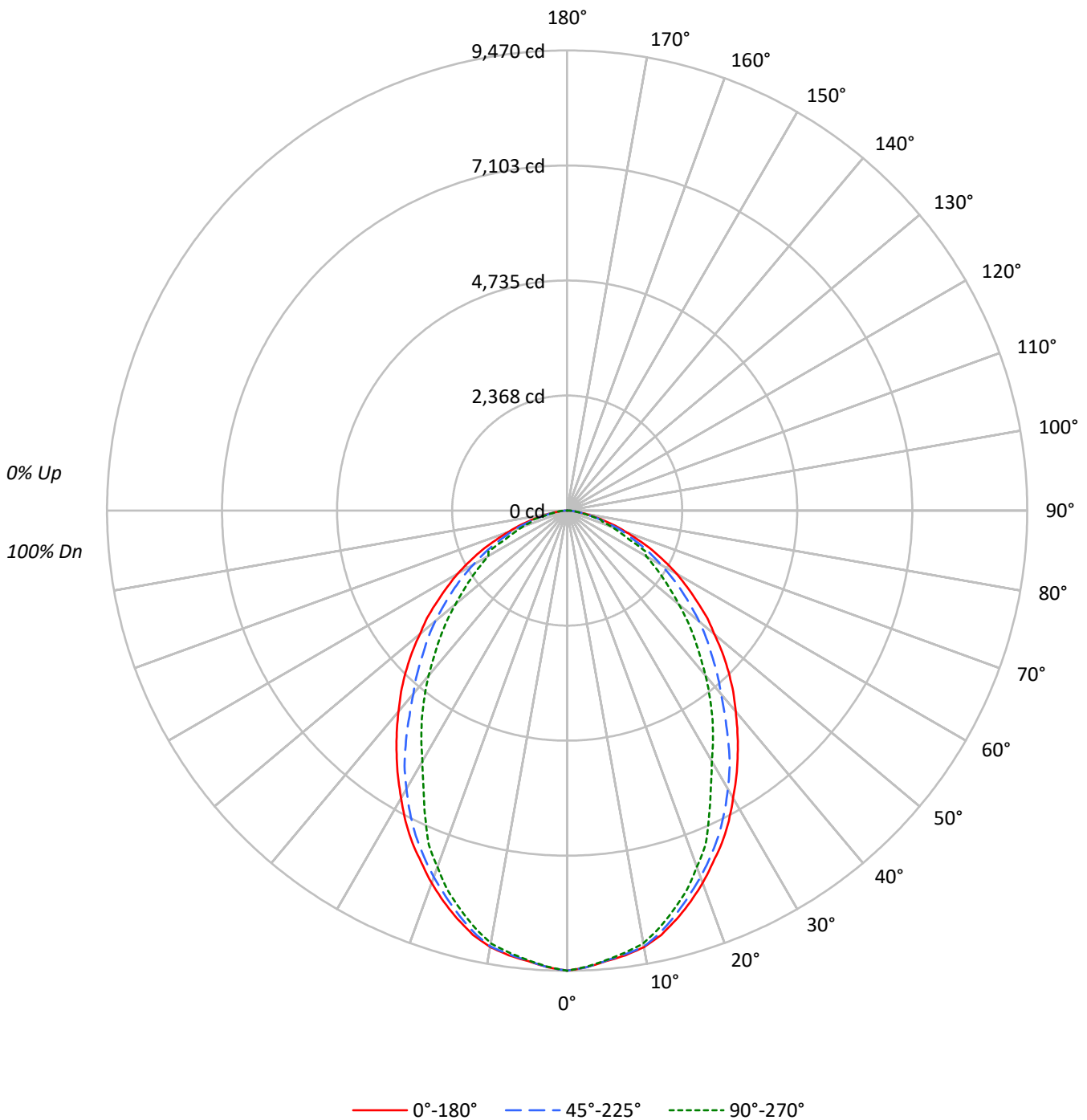
Lumens per Lamp: N/A  
Luminaire Lumens: 18591.0 lumens  
Efficiency: N/A  
Efficacy: 107.6 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 172.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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	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	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°	12742	12742	12742
5°	12569	12554	12539
10°	12460	12445	12355
15°	12124	12002	11834
20°	11678	11490	11177
25°	11199	10955	10272
30°	10614	10274	9253
35°	10052	9495	8560
40°	9480	8653	7788
45°	8937	7999	7041
50°	8273	7425	6279
55°	7653	6729	5624
60°	7012	6010	5038
65°	6169	5263	4461
70°	5082	4608	3790
75°	4041	3529	3699
80°	2714	2545	2375
85°	1690	2029	2367

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 8937 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	881.5	4.7
10°-20°	2419.3	13.0
20°-30°	3349.3	18.0
30°-40°	3571.4	19.2
40°-50°	3258.1	17.5
50°-60°	2552.5	13.7
60°-70°	1663.6	8.9
70°-80°	737.0	4.0
80°-90°	158.2	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°	6650.2	35.8
0°-40°	10221.5	55.0
0°-60°	16032.1	86.2
0°-90°	18591.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	18591.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	9470	9470	9470	9470	9470	
5°	9306	9295	9295	9284	9284	883
15°	8704	8704	8616	8528	8496	2447
25°	7543	7499	7379	7116	6919	3463
35°	6120	6076	5780	5343	5211	3826
45°	4697	4598	4204	3854	3700	3618
55°	3262	3164	2868	2529	2398	2926
65°	1938	1828	1653	1686	1401	1910
75°	777	723	679	646	712	833
85°	110	120	131	142	153	152
90°	0	0	0	0	0	

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	9470.0	9470.0	9470.0	9470.0	9470.0
2.5°	9404.3	9404.3	9404.3	9393.4	9393.4
5°	9305.8	9294.8	9294.8	9283.9	9283.9
7.5°	9229.2	9218.2	9207.3	9196.3	9174.4
10°	9119.7	9119.7	9108.7	9054.0	9043.0
12.5°	8944.5	8933.6	8889.8	8813.1	8791.2
15°	8703.6	8703.6	8616.1	8528.5	8495.6
17.5°	8440.9	8429.9	8320.5	8232.9	8189.1
20°	8156.2	8134.4	8024.9	7882.5	7805.9
22.5°	7838.8	7838.8	7707.4	7521.3	7444.6
25°	7543.2	7499.4	7378.9	7116.2	6919.1
27.5°	7203.8	7138.1	7006.7	6634.5	6404.6
30°	6831.5	6798.7	6612.6	6130.9	5955.7
32.5°	6481.2	6426.5	6229.4	5725.8	5583.5
35°	6119.9	6076.1	5780.5	5342.6	5211.2
37.5°	5758.6	5703.9	5331.7	4981.3	4817.1
40°	5397.4	5331.7	4926.6	4609.1	4433.9
42.5°	5058.0	4970.4	4576.3	4236.9	4039.8
45°	4696.7	4598.2	4204.0	3853.7	3700.4
47.5°	4335.4	4247.8	3886.5	3525.3	3350.1
50°	3952.2	3875.6	3547.1	3185.9	2999.7
52.5°	3634.7	3514.3	3196.8	2835.5	2682.3
55°	3262.5	3164.0	2868.4	2529.0	2397.6
57.5°	2923.1	2824.6	2550.9	2233.4	2123.9
60°	2605.6	2463.3	2233.4	1959.7	1872.1
62.5°	2255.3	2145.8	1948.7	1718.8	1828.3
65°	1937.8	1828.3	1653.1	1686.0	1401.3
67.5°	1587.5	1532.7	1379.4	1226.2	1182.4
70°	1291.9	1226.2	1171.4	1007.2	963.4
72.5°	1029.1	963.4	886.8	799.2	766.4
75°	777.3	722.6	678.8	645.9	711.6
77.5°	536.5	514.6	481.7	448.9	437.9
80°	350.3	339.4	328.4	317.5	306.5
82.5°	208.0	208.0	208.0	208.0	208.0
85°	109.5	120.4	131.4	142.3	153.3
87.5°	65.7	65.7	76.6	87.6	98.5
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)