

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: P563500

Luminaire Tested: FSR-24-4-LD4-3STD-35-UNV-93-96-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563500  
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-LD4-3STD-35-UNV-93-96-EDD-90  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR TEMPER  
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

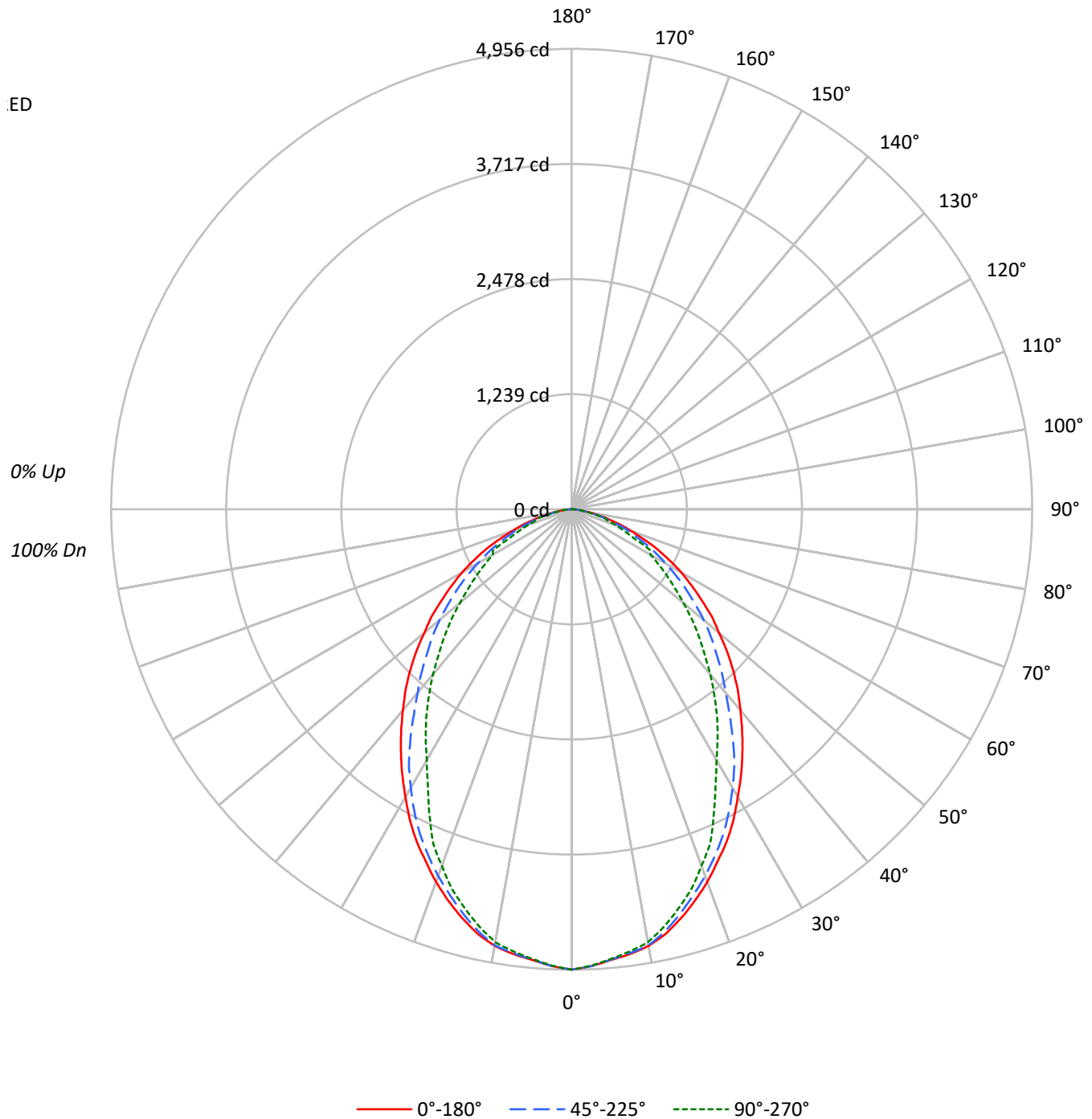
Lumens per Lamp: N/A  
Luminaire Lumens: 9729.0 lumens  
Efficiency: N/A  
Efficacy: 97.4 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 99.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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°	6668	6668	6668
5°	6577	6570	6562
10°	6520	6513	6466
15°	6345	6281	6193
20°	6112	6013	5849
25°	5860	5733	5376
30°	5554	5376	4842
35°	5261	4969	4479
40°	4961	4528	4076
45°	4677	4186	3685
50°	4329	3886	3286
55°	4005	3521	2943
60°	3669	3145	2636
65°	3229	2754	2335
70°	2660	2412	1983
75°	2115	1847	1936
80°	1420	1332	1243
85°	885	1062	1238

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4677 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	461.3	4.7
10°-20°	1266.1	13.0
20°-30°	1752.8	18.0
30°-40°	1869.0	19.2
40°-50°	1705.0	17.5
50°-60°	1335.8	13.7
60°-70°	870.6	8.9
70°-80°	385.7	4.0
80°-90°	82.8	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°	3480.1	35.8
0°-40°	5349.1	55.0
0°-60°	8389.9	86.2
0°-90°	9729.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9729.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4956	4956	4956	4956	4956	
5°	4870	4864	4864	4858	4858	462
15°	4555	4555	4509	4463	4446	1280
25°	3948	3925	3862	3724	3621	1812
35°	3203	3180	3025	2796	2727	2002
45°	2458	2406	2200	2017	1936	1893
55°	1707	1656	1501	1324	1255	1531
65°	1014	957	865	882	733	999
75°	407	378	355	338	372	436
85°	57	63	69	74	80	79
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4955.8	4955.8	4955.8	4955.8	4955.8
2.5°	4921.4	4921.4	4921.4	4915.7	4915.7
5°	4869.9	4864.2	4864.2	4858.4	4858.4
7.5°	4829.8	4824.0	4818.3	4812.6	4801.1
10°	4772.5	4772.5	4766.8	4738.1	4732.4
12.5°	4680.8	4675.1	4652.2	4612.1	4600.6
15°	4554.8	4554.8	4508.9	4463.1	4445.9
17.5°	4417.3	4411.5	4354.2	4308.4	4285.5
20°	4268.3	4256.9	4199.6	4125.1	4085.0
22.5°	4102.2	4102.2	4033.4	3936.0	3895.9
25°	3947.5	3924.6	3861.5	3724.0	3620.9
27.5°	3769.9	3735.5	3666.7	3471.9	3351.6
30°	3575.1	3557.9	3460.5	3208.4	3116.7
32.5°	3391.7	3363.1	3260.0	2996.4	2921.9
35°	3202.7	3179.7	3025.1	2795.9	2727.1
37.5°	3013.6	2985.0	2790.2	2606.8	2520.9
40°	2824.5	2790.2	2578.2	2412.0	2320.4
42.5°	2646.9	2601.1	2394.8	2217.2	2114.1
45°	2457.9	2406.3	2200.0	2016.7	1936.5
47.5°	2268.8	2223.0	2033.9	1844.8	1753.2
50°	2068.3	2028.2	1856.3	1667.2	1569.8
52.5°	1902.1	1839.1	1672.9	1483.9	1403.7
55°	1707.3	1655.8	1501.1	1323.5	1254.7
57.5°	1529.7	1478.2	1334.9	1168.8	1111.5
60°	1363.6	1289.1	1168.8	1025.5	979.7
62.5°	1180.2	1122.9	1019.8	899.5	956.8
65°	1014.1	956.8	865.1	882.3	733.3
67.5°	830.7	802.1	721.9	641.7	618.8
70°	676.1	641.7	613.0	527.1	504.2
72.5°	538.6	504.2	464.1	418.2	401.0
75°	406.8	378.1	355.2	338.0	372.4
77.5°	280.7	269.3	252.1	234.9	229.2
80°	183.3	177.6	171.9	166.1	160.4
82.5°	108.9	108.9	108.9	108.9	108.9
85°	57.3	63.0	68.8	74.5	80.2
87.5°	34.4	34.4	40.1	45.8	51.6
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)