

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: P563110

Luminaire Tested: FSR-24-4-LD4-3HI-35-UNV-93-87-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563110  
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-LD4-3HI-35-UNV-93-87-EDD-90  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

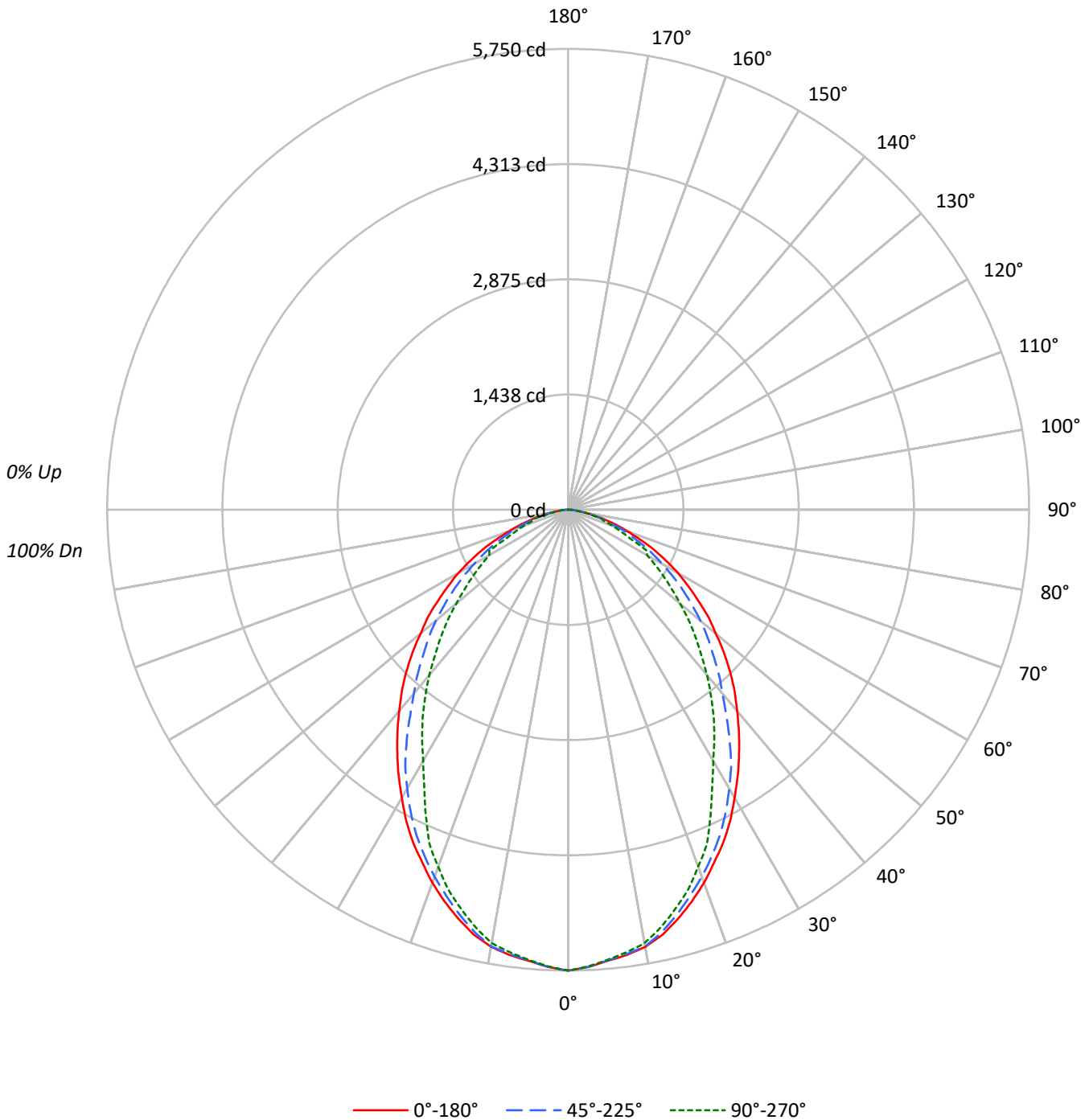
Lumens per Lamp: N/A  
Luminaire Lumens: 11289.0 lumens  
Efficiency: N/A  
Efficacy: 87.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 129.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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: P563110

CATALOG NUMBER: FSR-24-4-LD4-3HI-35-UNV-93-87-EDD-90

### Luminous Intensity Polar Plot



TEST NUMBER: P563110

CATALOG NUMBER: FSR-24-4-LD4-3HI-35-UNV-93-87-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	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					87			
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	75					75			
3	93	84	77	71	91	82	76	70	79	74	69	77	72	68	74	70	67	65					65			
4	86	75	67	61	84	74	66	61	72	65	60	69	64	59	67	62	58	56					56			
5	80	68	60	54	78	67	59	53	65	58	53	63	57	52	61	56	52	50					50			
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44					44			
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40					40			
8	65	52	44	38	63	51	44	38	50	43	38	49	42	38	48	42	38	36					36			
9	61	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	33					33			
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30					30			

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

	0°	45°	90°
0°	7737	7737	7737
5°	7632	7623	7614
10°	7566	7557	7502
15°	7362	7288	7186
20°	7091	6977	6787
25°	6800	6652	6237
30°	6445	6238	5619
35°	6104	5765	5198
40°	5756	5254	4729
45°	5427	4857	4276
50°	5023	4509	3813
55°	4647	4086	3415
60°	4258	3650	3059
65°	3746	3196	2709
70°	3086	2798	2301
75°	2454	2143	2246
80°	1648	1545	1442
85°	1027	1232	1437

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5427 cd/sqm



TEST NUMBER: P563110

CATALOG NUMBER: FSR-24-4-LD4-3HI-35-UNV-93-87-EDD-90

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	535.3	4.7
10°-20°	1469.1	13.0
20°-30°	2033.8	18.0
30°-40°	2168.6	19.2
40°-50°	1978.4	17.5
50°-60°	1550.0	13.7
60°-70°	1010.2	8.9
70°-80°	447.6	4.0
80°-90°	96.1	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°	4038.2	35.8
0°-40°	6206.8	55.0
0°-60°	9735.2	86.2
0°-90°	11289.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	11289.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5750	5750	5750	5750	5750	
5°	5651	5644	5644	5638	5638	536
15°	5285	5285	5232	5179	5159	1486
25°	4580	4554	4481	4321	4202	2103
35°	3716	3690	3510	3244	3164	2323
45°	2852	2792	2553	2340	2247	2197
55°	1981	1921	1742	1536	1456	1777
65°	1177	1110	1004	1024	851	1160
75°	472	439	412	392	432	506
85°	66	73	80	86	93	92
90°	0	0	0	0	0	



TEST NUMBER: P563110

CATALOG NUMBER: FSR-24-4-LD4-3HI-35-UNV-93-87-EDD-90

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5750.5	5750.5	5750.5	5750.5	5750.5
2.5°	5710.6	5710.6	5710.6	5703.9	5703.9
5°	5650.7	5644.1	5644.1	5637.5	5637.5
7.5°	5604.2	5597.6	5590.9	5584.3	5571.0
10°	5537.7	5537.7	5531.1	5497.8	5491.2
12.5°	5431.4	5424.7	5398.1	5351.6	5338.3
15°	5285.1	5285.1	5231.9	5178.7	5158.8
17.5°	5125.6	5118.9	5052.4	4999.2	4972.7
20°	4952.7	4939.4	4872.9	4786.5	4740.0
22.5°	4759.9	4759.9	4680.1	4567.1	4520.6
25°	4580.4	4553.8	4480.7	4321.2	4201.5
27.5°	4374.3	4334.5	4254.7	4028.7	3889.0
30°	4148.3	4128.4	4015.4	3722.8	3616.5
32.5°	3935.6	3902.3	3782.7	3476.9	3390.4
35°	3716.2	3689.6	3510.1	3244.2	3164.4
37.5°	3496.8	3463.6	3237.5	3024.8	2925.1
40°	3277.4	3237.5	2991.6	2798.8	2692.4
42.5°	3071.3	3018.2	2778.8	2572.8	2453.1
45°	2852.0	2792.1	2552.8	2340.1	2247.0
47.5°	2632.6	2579.4	2360.0	2140.6	2034.3
50°	2399.9	2353.4	2153.9	1934.5	1821.5
52.5°	2207.1	2134.0	1941.2	1721.8	1628.7
55°	1981.1	1921.3	1741.8	1535.7	1455.9
57.5°	1775.0	1715.2	1549.0	1356.2	1289.7
60°	1582.2	1495.8	1356.2	1190.0	1136.8
62.5°	1369.5	1303.0	1183.3	1043.7	1110.2
65°	1176.7	1110.2	1003.8	1023.8	850.9
67.5°	964.0	930.7	837.6	744.6	718.0
70°	784.5	744.6	711.3	611.6	585.0
72.5°	624.9	585.0	538.5	485.3	465.4
75°	472.0	438.8	412.2	392.2	432.1
77.5°	325.7	312.5	292.5	272.6	265.9
80°	212.7	206.1	199.4	192.8	186.1
82.5°	126.3	126.3	126.3	126.3	126.3
85°	66.5	73.1	79.8	86.4	93.1
87.5°	39.9	39.9	46.5	53.2	59.8
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)