

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: P563657

Luminaire Tested: FSR-24-4-LD4-4HI-35-UNV-81-88-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563657  
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-81-88-EDD  
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SI  
LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

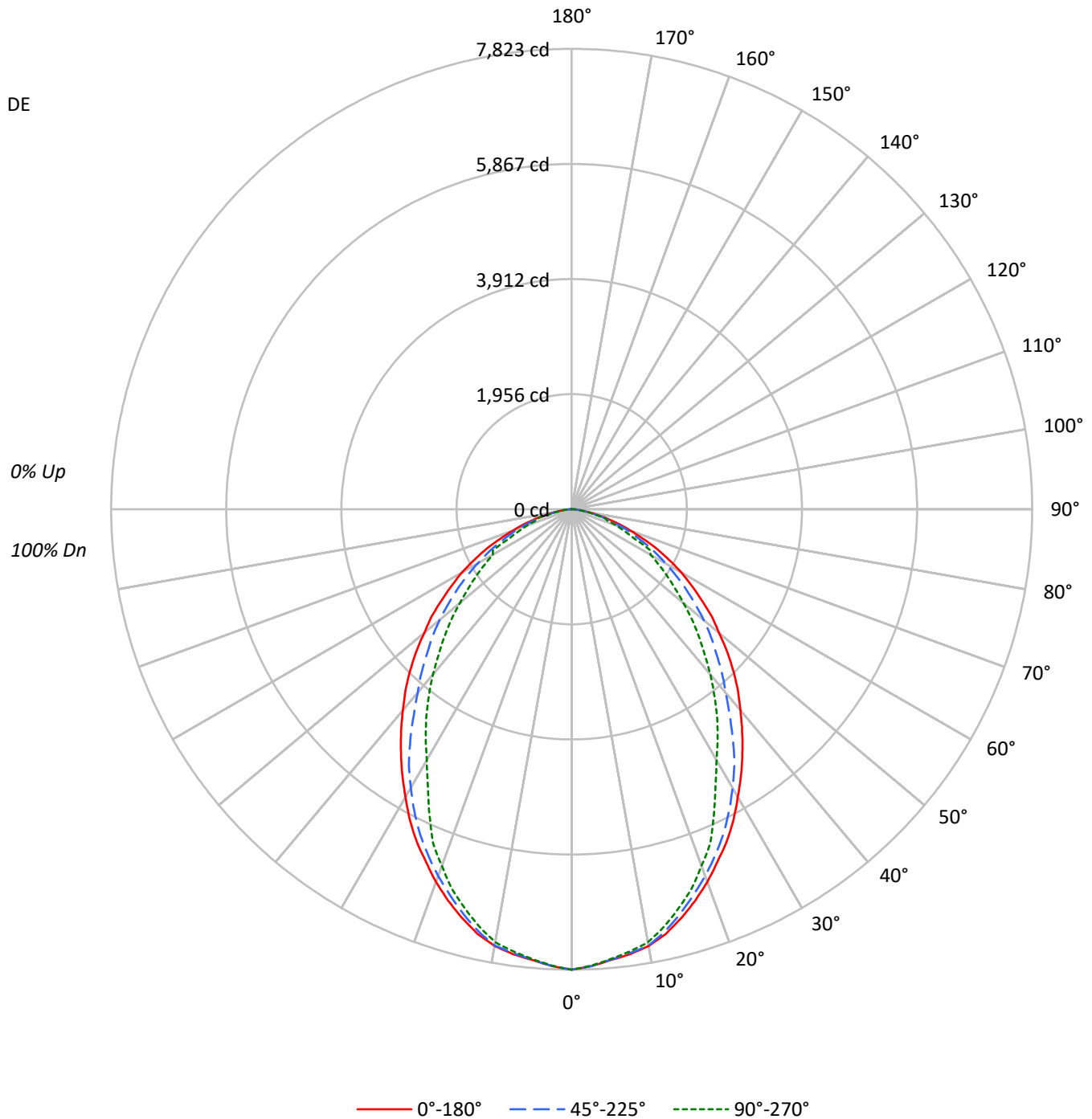
Lumens per Lamp: N/A  
Luminaire Lumens: 15358.0 lumens  
Efficiency: N/A  
Efficacy: 88.9 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 172.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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



TEST NUMBER: P563657

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-81-88-EDD

### Luminous Intensity Polar Plot





TEST NUMBER: P563657

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-81-88-EDD

**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°	10526	10526	10526
5°	10383	10371	10359
10°	10293	10281	10206
15°	10015	9915	9776
20°	9648	9492	9233
25°	9251	9050	8486
30°	8768	8487	7644
35°	8304	7844	7071
40°	7831	7148	6434
45°	7383	6608	5817
50°	6834	6134	5187
55°	6322	5559	4646
60°	5792	4965	4162
65°	5096	4348	3685
70°	4198	3807	3131
75°	3338	2915	3056
80°	2242	2102	1962
85°	1396	1675	1954

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7383 cd/sqm



TEST NUMBER: P563657

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-81-88-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	728.2	4.7
10°-20°	1998.6	13.0
20°-30°	2766.9	18.0
30°-40°	2950.3	19.2
40°-50°	2691.5	17.5
50°-60°	2108.6	13.7
60°-70°	1374.3	8.9
70°-80°	608.9	4.0
80°-90°	130.7	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°	5493.7	35.8
0°-40°	8444.0	55.0
0°-60°	13244.1	86.2
0°-90°	15358.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	15358.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	7823	7823	7823	7823	7823	
5°	7688	7678	7678	7669	7669	730
15°	7190	7190	7118	7045	7018	2021
25°	6231	6195	6096	5879	5716	2861
35°	5056	5020	4775	4414	4305	3161
45°	3880	3798	3473	3184	3057	2989
55°	2695	2614	2370	2089	1981	2417
65°	1601	1510	1366	1393	1158	1578
75°	642	597	561	534	588	688
85°	90	100	108	118	127	125
90°	0	0	0	0	0	



TEST NUMBER: P563657

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-81-88-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	7823.2	7823.2	7823.2	7823.2	7823.2
2.5°	7768.9	7768.9	7768.9	7759.9	7759.9
5°	7687.5	7678.5	7678.5	7669.4	7669.4
7.5°	7624.2	7615.1	7606.1	7597.1	7579.0
10°	7533.7	7533.7	7524.7	7479.5	7470.4
12.5°	7389.0	7380.0	7343.8	7280.5	7262.4
15°	7190.1	7190.1	7117.7	7045.4	7018.2
17.5°	6973.0	6964.0	6873.5	6801.2	6765.0
20°	6737.9	6719.8	6629.3	6511.8	6448.5
22.5°	6475.6	6475.6	6367.1	6213.3	6150.0
25°	6231.4	6195.2	6095.7	5878.7	5715.9
27.5°	5951.0	5896.8	5788.2	5480.7	5290.8
30°	5643.5	5616.4	5462.6	5064.7	4920.0
32.5°	5354.1	5308.9	5146.1	4730.1	4612.5
35°	5055.7	5019.5	4775.3	4413.5	4305.0
37.5°	4757.2	4712.0	4404.5	4115.1	3979.4
40°	4458.7	4404.5	4069.9	3807.6	3662.9
42.5°	4178.4	4106.0	3780.4	3500.1	3337.3
45°	3879.9	3798.5	3472.9	3183.5	3056.9
47.5°	3581.5	3509.1	3210.7	2912.2	2767.5
50°	3264.9	3201.6	2930.3	2631.8	2478.1
52.5°	3002.6	2903.2	2640.9	2342.4	2215.8
55°	2695.1	2613.7	2369.6	2089.2	1980.7
57.5°	2414.8	2333.4	2107.3	1845.0	1754.6
60°	2152.5	2034.9	1845.0	1618.9	1546.5
62.5°	1863.1	1772.6	1609.9	1419.9	1510.4
65°	1600.8	1510.4	1365.7	1392.8	1157.6
67.5°	1311.4	1266.2	1139.6	1012.9	976.8
70°	1067.2	1012.9	967.7	832.1	795.9
72.5°	850.1	795.9	732.6	660.2	633.1
75°	642.1	596.9	560.7	533.6	587.9
77.5°	443.2	425.1	397.9	370.8	361.8
80°	289.4	280.4	271.3	262.3	253.2
82.5°	171.8	171.8	171.8	171.8	171.8
85°	90.4	99.5	108.5	117.6	126.6
87.5°	54.3	54.3	63.3	72.4	81.4
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)