

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: P590781

Luminaire Tested: FSR-24-2-LD4-4HI-50-UNV-81-84-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590781  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/8/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: FAIL-SAFE  
Catalog Number: FSR-24-2-LD4-4HI-50-UNV-81-84-EDD  
Description: 2X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI  
LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

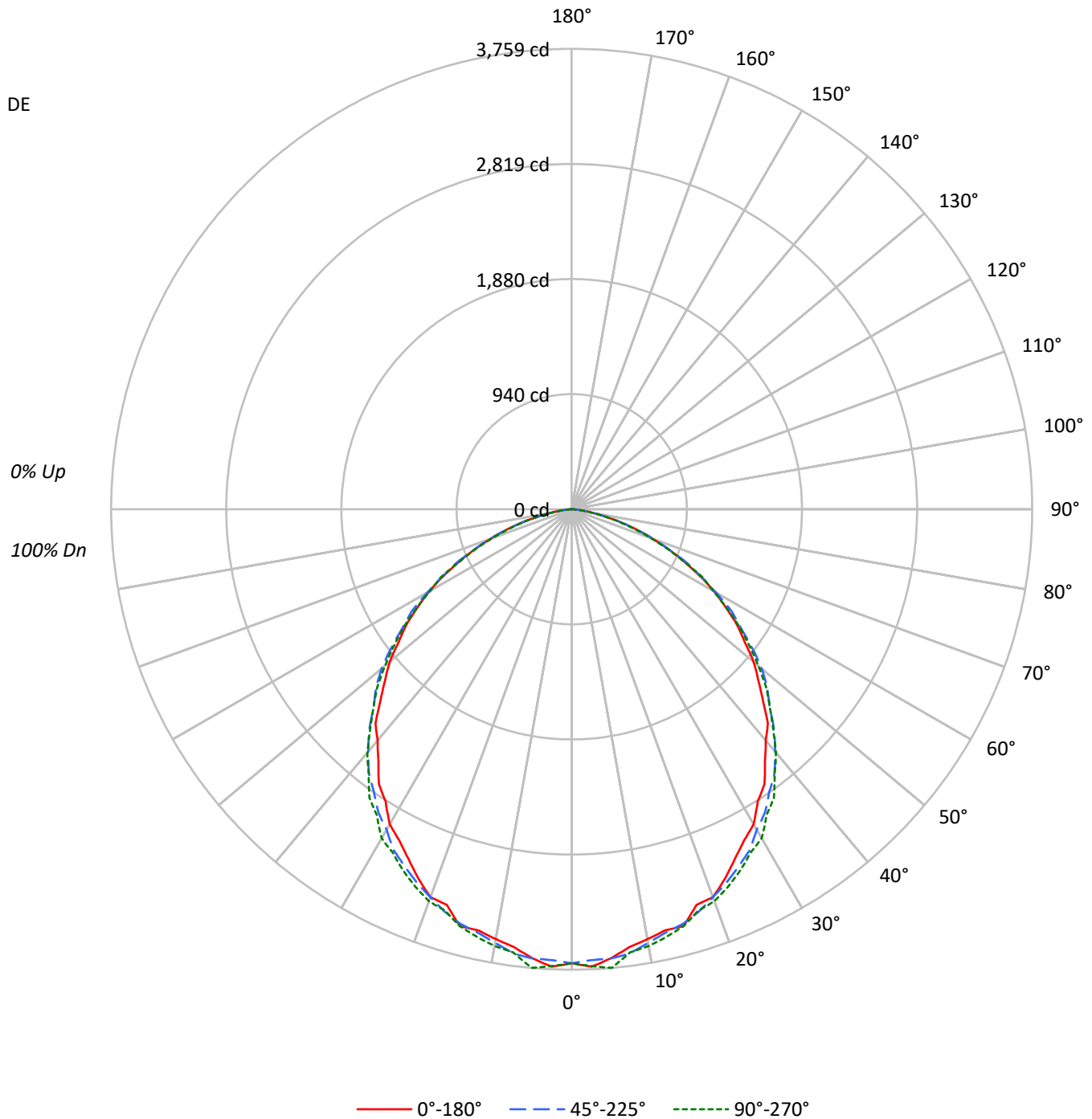
Lumens per Lamp: N/A  
Luminaire Lumens: 9341.0 lumens  
Efficiency: N/A  
Efficacy: 108.1 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 86.4  
Input Voltage (V):  
Input Current (Ain): NR  
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



TEST NUMBER: P590781

CATALOG NUMBER: FSR-24-2-LD4-4HI-50-UNV-81-84-EDD

### Luminous Intensity Polar Plot





TEST NUMBER: P590781

CATALOG NUMBER: FSR-24-2-LD4-4HI-50-UNV-81-84-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	105	101	98	107	103	100	96	99	96	93	95	93	90	91	90	88					86				
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	75					73				
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64					62				
4	84	73	64	58	82	71	64	58	69	62	57	67	61	56	65	59	55					53				
5	78	65	57	50	76	64	56	50	62	55	49	60	54	49	58	53	48					46				
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43					41				
7	67	53	45	39	65	53	45	39	51	44	39	50	43	38	48	42	38					36				
8	62	49	41	35	61	48	40	35	47	40	34	46	39	34	44	39	34					32				
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31					29				
10	54	41	34	29	53	41	33	28	40	33	28	39	33	28	38	32	28					26				

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

	0°	45°	90°
0°	9974	9974	9974
5°	9941	9944	10154
10°	9739	9824	9893
15°	9816	9763	9818
20°	9650	9650	9753
25°	9353	9558	9663
30°	9225	9387	9637
35°	9008	9244	9451
40°	8657	9074	9114
45°	8396	8694	8707
50°	8120	8486	8324
55°	7736	7887	7831
60°	7234	7307	7175
65°	6451	6615	6405
70°	5535	5553	5399
75°	4383	4373	4205
80°	2937	2854	2744
85°	1596	1581	1479

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 8918 cd/sqm



TEST NUMBER: P590781

CATALOG NUMBER: FSR-24-2-LD4-4HI-50-UNV-81-84-EDD

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	348.6	3.7
10°-20°	988.1	10.6
20°-30°	1480.3	15.8
30°-40°	1754.5	18.8
40°-50°	1757.7	18.8
50°-60°	1492.0	16.0
60°-70°	1005.9	10.8
70°-80°	442.0	4.7
80°-90°	71.8	0.8
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°	2817.0	30.2
0°-40°	4571.5	48.9
0°-60°	7821.3	83.7
0°-90°	9341.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9341.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3706	3706	3706	3706	3706	
5°	3680	3671	3681	3670	3759	347
15°	3524	3483	3504	3522	3524	982
25°	3150	3167	3219	3261	3254	1456
35°	2742	2750	2814	2879	2877	1702
45°	2206	2247	2284	2343	2288	1707
55°	1649	1638	1681	1670	1669	1467
65°	1013	1000	1039	999	1006	1008
75°	422	413	421	391	404	452
85°	52	50	51	50	48	75
90°	0	0	0	0	0	



TEST NUMBER: P590781

CATALOG NUMBER: FSR-24-2-LD4-4HI-50-UNV-81-84-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3706.3	3706.3	3706.3	3706.3	3706.3
2.5°	3738.3	3710.1	3683.8	3714.4	3733.1
5°	3680.0	3671.3	3681.4	3670.4	3758.9
7.5°	3604.3	3637.4	3656.5	3644.5	3649.8
10°	3564.1	3552.7	3595.3	3624.9	3620.6
12.5°	3521.1	3538.3	3540.7	3572.8	3575.6
15°	3523.5	3482.8	3504.3	3522.5	3524.0
17.5°	3386.6	3430.6	3445.5	3487.1	3435.4
20°	3369.9	3337.8	3369.9	3412.5	3405.8
22.5°	3267.0	3231.1	3300.0	3337.8	3335.4
25°	3150.2	3167.4	3219.1	3261.2	3254.5
27.5°	3047.8	3067.9	3141.6	3199.5	3162.2
30°	2968.8	2958.8	3021.0	3072.7	3101.4
32.5°	2827.7	2864.0	2936.8	2988.0	2960.7
35°	2742.0	2750.2	2813.8	2878.9	2877.0
37.5°	2592.2	2630.0	2719.5	2737.7	2721.0
40°	2464.5	2502.3	2583.1	2602.8	2594.6
42.5°	2370.2	2376.9	2446.3	2468.8	2432.9
45°	2206.1	2247.2	2284.5	2343.4	2287.9
47.5°	2066.3	2085.5	2165.9	2181.7	2152.5
50°	1939.5	1946.2	2027.1	2007.5	1988.3
52.5°	1780.2	1808.4	1853.9	1850.0	1827.5
55°	1649.0	1638.0	1681.1	1669.6	1669.1
57.5°	1491.6	1510.7	1546.2	1528.0	1498.8
60°	1344.2	1344.7	1357.6	1337.0	1333.2
62.5°	1180.1	1185.8	1188.7	1163.3	1204.5
65°	1013.1	999.7	1038.9	999.2	1005.9
67.5°	859.5	866.2	862.3	837.4	847.0
70°	703.5	712.1	705.8	677.6	686.2
72.5°	560.8	550.3	557.0	521.6	537.9
75°	421.6	413.0	420.6	391.0	404.4
77.5°	287.1	293.8	289.0	273.2	282.3
80°	189.5	184.2	184.2	175.1	177.1
82.5°	110.5	105.3	103.8	101.0	105.3
85°	51.7	50.2	51.2	49.8	47.9
87.5°	18.7	19.1	19.1	18.2	17.2
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)