

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: P590909

Luminaire Tested: FSR-24-2-LD4-4STD-35-UNV-81-84-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590909  
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-LD4-4STD-35-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 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

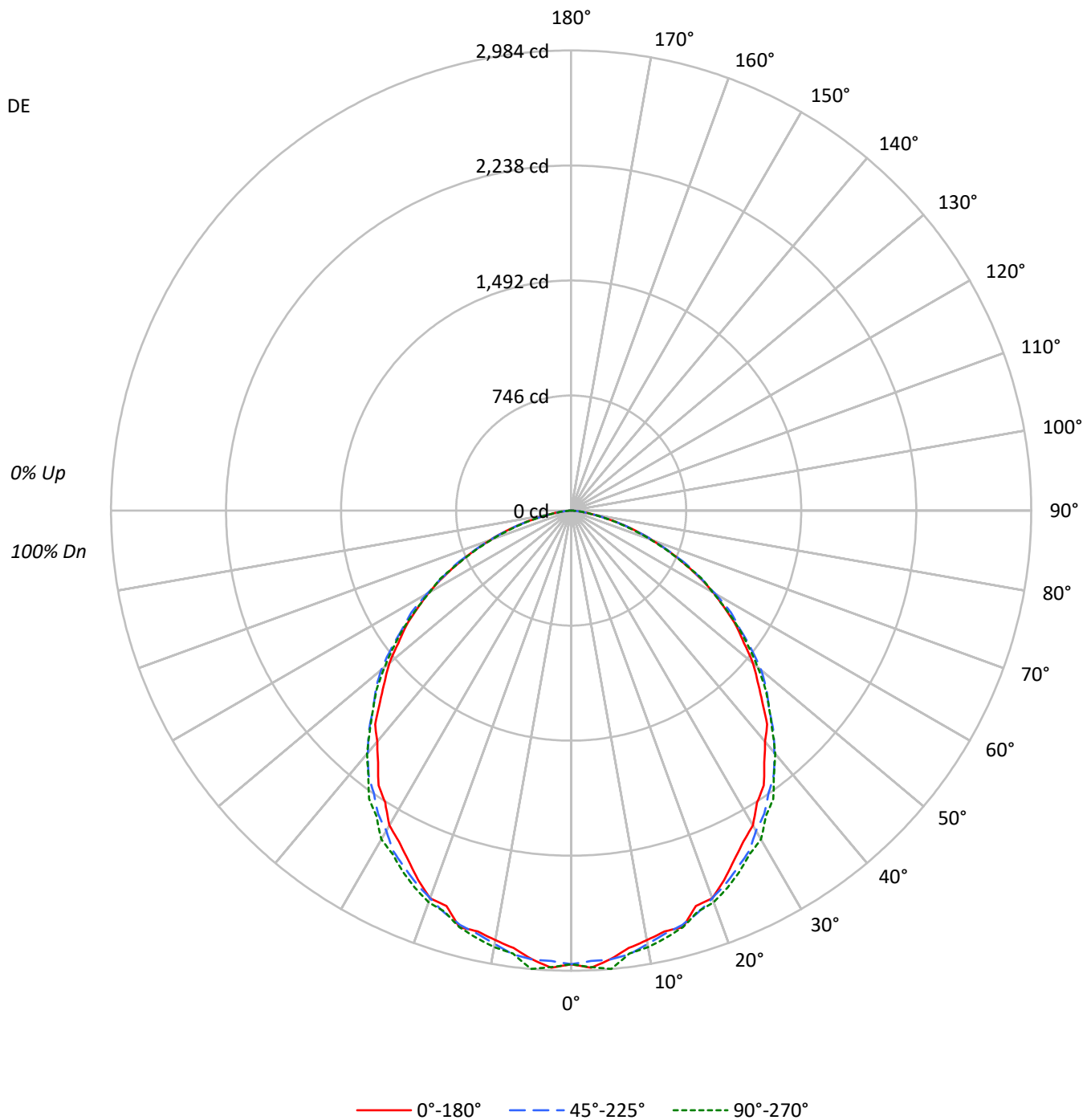
Lumens per Lamp: N/A  
Luminaire Lumens: 7414.0 lumens  
Efficiency: N/A  
Efficacy: 111.3 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 66.6  
Input Voltage (V):  
Input Current (Ain): NR  
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



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

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

	0°	45°	90°
0°	7916	7916	7916
5°	7890	7893	8059
10°	7730	7797	7852
15°	7791	7749	7792
20°	7659	7659	7741
25°	7424	7586	7670
30°	7322	7451	7649
35°	7150	7337	7501
40°	6871	7202	7234
45°	6664	6900	6911
50°	6445	6736	6607
55°	6141	6260	6215
60°	5742	5799	5695
65°	5120	5251	5084
70°	4393	4408	4286
75°	3479	3472	3336
80°	2331	2266	2177
85°	1266	1254	1173

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 7078 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	276.7	3.7
10°-20°	784.2	10.6
20°-30°	1174.9	15.8
30°-40°	1392.5	18.8
40°-50°	1395.1	18.8
50°-60°	1184.2	16.0
60°-70°	798.4	10.8
70°-80°	350.8	4.7
80°-90°	57.0	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°	2235.9	30.2
0°-40°	3628.4	48.9
0°-60°	6207.8	83.7
0°-90°	7414.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7414.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2942	2942	2942	2942	2942	
5°	2921	2914	2922	2913	2984	275
15°	2797	2764	2781	2796	2797	779
25°	2500	2514	2555	2588	2583	1156
35°	2176	2183	2233	2285	2284	1351
45°	1751	1784	1813	1860	1816	1354
55°	1309	1300	1334	1325	1325	1164
65°	804	793	825	793	798	800
75°	335	328	334	310	321	359
85°	41	40	41	40	38	59
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2941.7	2941.7	2941.7	2941.7	2941.7
2.5°	2967.1	2944.7	2923.8	2948.1	2963.0
5°	2920.8	2914.0	2921.9	2913.2	2983.5
7.5°	2860.8	2887.0	2902.2	2892.7	2896.9
10°	2828.9	2819.8	2853.6	2877.1	2873.7
12.5°	2794.7	2808.4	2810.3	2835.7	2838.0
15°	2796.6	2764.3	2781.4	2795.8	2797.0
17.5°	2688.0	2722.9	2734.7	2767.7	2726.7
20°	2674.7	2649.2	2674.7	2708.5	2703.2
22.5°	2593.0	2564.5	2619.2	2649.2	2647.3
25°	2500.3	2514.0	2555.0	2588.5	2583.1
27.5°	2419.1	2435.0	2493.5	2539.5	2509.8
30°	2356.4	2348.4	2397.8	2438.8	2461.6
32.5°	2244.3	2273.2	2330.9	2371.6	2349.9
35°	2176.4	2182.8	2233.3	2285.0	2283.5
37.5°	2057.5	2087.5	2158.5	2172.9	2159.6
40°	1956.1	1986.1	2050.3	2065.8	2059.4
42.5°	1881.2	1886.6	1941.6	1959.5	1931.0
45°	1751.0	1783.6	1813.2	1860.0	1815.9
47.5°	1640.1	1655.2	1719.1	1731.6	1708.4
50°	1539.4	1544.7	1608.9	1593.3	1578.1
52.5°	1412.9	1435.3	1471.4	1468.4	1450.5
55°	1308.9	1300.1	1334.3	1325.2	1324.8
57.5°	1183.9	1199.1	1227.2	1212.8	1189.6
60°	1066.9	1067.3	1077.5	1061.2	1058.2
62.5°	936.6	941.2	943.5	923.3	956.0
65°	804.1	793.4	824.6	793.1	798.4
67.5°	682.2	687.5	684.4	664.7	672.3
70°	558.3	565.2	560.2	537.8	544.7
72.5°	445.1	436.8	442.1	414.0	426.9
75°	334.6	327.8	333.9	310.3	320.9
77.5°	227.9	233.2	229.4	216.9	224.1
80°	150.4	146.2	146.2	139.0	140.5
82.5°	87.7	83.6	82.4	80.1	83.6
85°	41.0	39.9	40.6	39.5	38.0
87.5°	14.8	15.2	15.2	14.4	13.7
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)