

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: P590317

Luminaire Tested: FSR-24-2-LD4-2LO-50-UNV-93-84-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590317  
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-LD4-2LO-50-UNV-93-84-EDD  
Description: 2X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

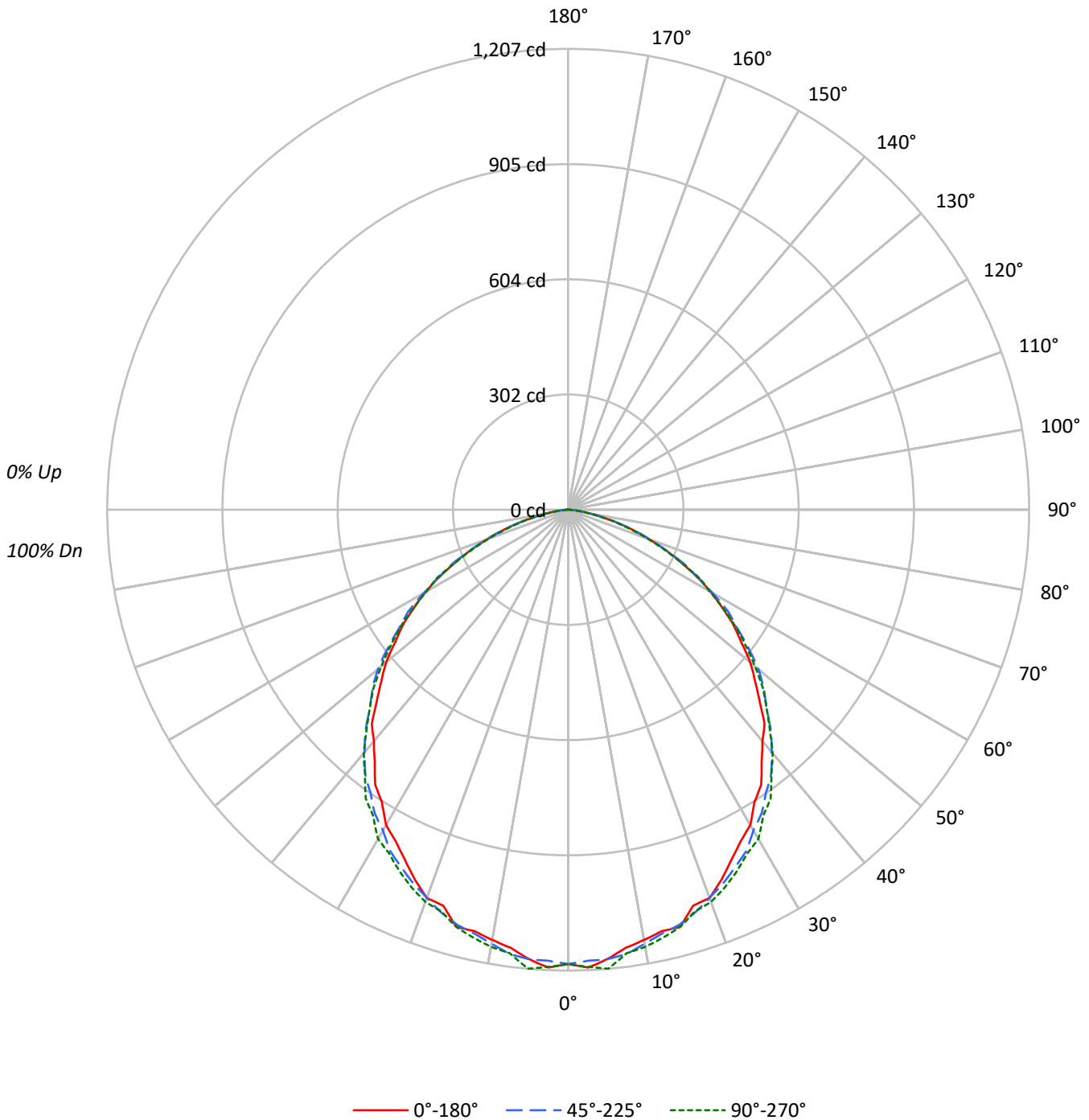
Lumens per Lamp: N/A  
Luminaire Lumens: 2999.0 lumens  
Efficiency: N/A  
Efficacy: 128.2 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 23.4  
Input Voltage (V):  
Input Current (Ain): NR  
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



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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°	3202	3202	3202
5°	3192	3193	3260
10°	3127	3154	3176
15°	3151	3134	3152
20°	3098	3098	3131
25°	3003	3069	3102
30°	2962	3014	3094
35°	2892	2968	3034
40°	2779	2913	2926
45°	2696	2791	2795
50°	2607	2725	2673
55°	2484	2532	2514
60°	2323	2346	2303
65°	2071	2124	2056
70°	1777	1783	1733
75°	1408	1404	1350
80°	942	917	880
85°	513	506	475

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 2863 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	111.9	3.7
10°-20°	317.2	10.6
20°-30°	475.3	15.8
30°-40°	563.3	18.8
40°-50°	564.3	18.8
50°-60°	479.0	16.0
60°-70°	323.0	10.8
70°-80°	141.9	4.7
80°-90°	23.0	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°	904.4	30.2
0°-40°	1467.7	48.9
0°-60°	2511.1	83.7
0°-90°	2999.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2999.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1190	1190	1190	1190	1190	
5°	1182	1179	1182	1178	1207	111
15°	1131	1118	1125	1131	1131	315
25°	1011	1017	1034	1047	1045	468
35°	880	883	903	924	924	547
45°	708	722	734	752	734	548
55°	529	526	540	536	536	471
65°	325	321	334	321	323	323
75°	135	133	135	126	130	145
85°	17	16	16	16	15	24
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1189.9	1189.9	1189.9	1189.9	1189.9
2.5°	1200.2	1191.2	1182.7	1192.5	1198.5
5°	1181.5	1178.7	1181.9	1178.4	1206.8
7.5°	1157.2	1167.8	1173.9	1170.1	1171.8
10°	1144.3	1140.6	1154.3	1163.8	1162.4
12.5°	1130.5	1136.0	1136.8	1147.1	1148.0
15°	1131.2	1118.2	1125.1	1130.9	1131.4
17.5°	1087.3	1101.4	1106.2	1119.6	1103.0
20°	1081.9	1071.6	1081.9	1095.6	1093.4
22.5°	1048.9	1037.4	1059.5	1071.6	1070.9
25°	1011.4	1016.9	1033.5	1047.0	1044.9
27.5°	978.5	985.0	1008.6	1027.2	1015.2
30°	953.2	949.9	969.9	986.5	995.7
32.5°	907.8	919.5	942.9	959.3	950.6
35°	880.3	883.0	903.4	924.3	923.7
37.5°	832.3	844.4	873.1	879.0	873.6
40°	791.2	803.4	829.3	835.6	833.0
42.5°	761.0	763.1	785.4	792.6	781.1
45°	708.3	721.5	733.5	752.4	734.5
47.5°	663.4	669.6	695.4	700.4	691.1
50°	622.7	624.8	650.8	644.5	638.4
52.5°	571.5	580.6	595.2	594.0	586.7
55°	529.4	525.9	539.7	536.0	535.9
57.5°	478.9	485.0	496.4	490.6	481.2
60°	431.6	431.7	435.9	429.3	428.0
62.5°	378.9	380.7	381.6	373.5	386.7
65°	325.3	321.0	333.5	320.8	322.9
67.5°	275.9	278.1	276.9	268.9	271.9
70°	225.8	228.6	226.6	217.6	220.3
72.5°	180.1	176.7	178.8	167.5	172.7
75°	135.4	132.6	135.0	125.5	129.8
77.5°	92.2	94.3	92.8	87.7	90.6
80°	60.8	59.2	59.2	56.2	56.8
82.5°	35.5	33.8	33.3	32.4	33.8
85°	16.6	16.1	16.4	16.0	15.4
87.5°	6.0	6.1	6.1	5.8	5.5
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)