

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: P590176

Luminaire Tested: FSR-24-2-LD4-2HI-40-UNV-81-87-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590176  
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-LD4-2HI-40-UNV-81-87-EDD  
Description: 2X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SI  
LENSES WITH, 80 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

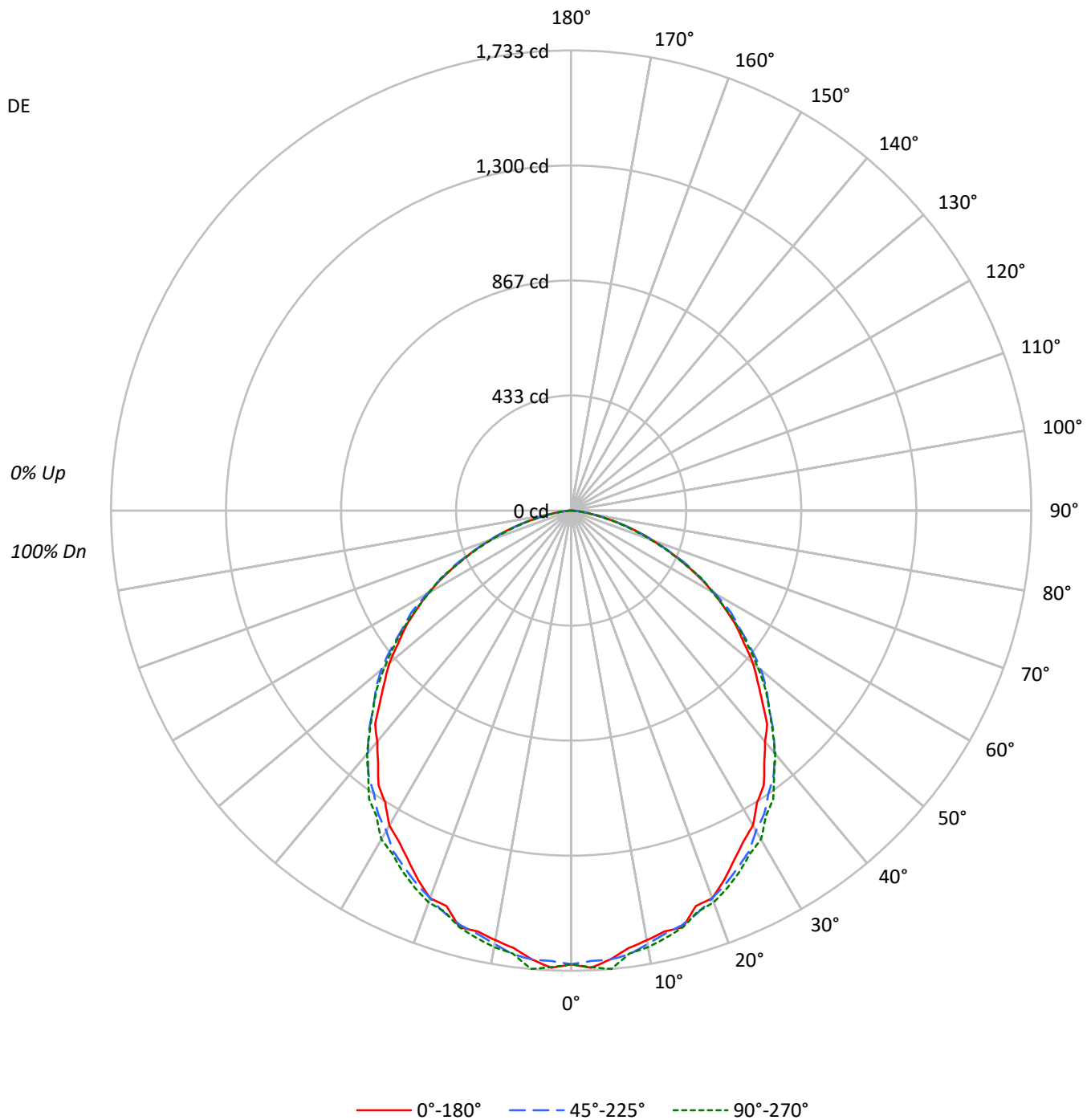
Lumens per Lamp: N/A  
Luminaire Lumens: 4306.0 lumens  
Efficiency: N/A  
Efficacy: 99.7 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 43.2  
Input Voltage (V):  
Input Current (Ain): NR  
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				
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°	4598	4598	4598
5°	4582	4584	4681
10°	4489	4529	4561
15°	4525	4500	4526
20°	4448	4448	4496
25°	4312	4406	4455
30°	4253	4327	4442
35°	4152	4261	4357
40°	3991	4183	4202
45°	3870	4008	4014
50°	3743	3912	3837
55°	3567	3636	3610
60°	3335	3368	3308
65°	2974	3049	2953
70°	2552	2560	2489
75°	2020	2016	1938
80°	1354	1316	1265
85°	735	729	682

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 4111 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	160.7	3.7
10°-20°	455.5	10.6
20°-30°	682.4	15.8
30°-40°	808.8	18.8
40°-50°	810.3	18.8
50°-60°	687.8	16.0
60°-70°	463.7	10.8
70°-80°	203.7	4.7
80°-90°	33.1	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°	1298.6	30.2
0°-40°	2107.4	48.9
0°-60°	3605.4	83.7
0°-90°	4306.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4306.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1708	1708	1708	1708	1708	
5°	1696	1692	1697	1692	1733	160
15°	1624	1606	1615	1624	1624	453
25°	1452	1460	1484	1503	1500	671
35°	1264	1268	1297	1327	1326	785
45°	1017	1036	1053	1080	1055	787
55°	760	755	775	770	769	676
65°	467	461	479	461	464	464
75°	194	190	194	180	186	208
85°	24	23	24	23	22	35
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1708.5	1708.5	1708.5	1708.5	1708.5
2.5°	1723.3	1710.3	1698.1	1712.3	1720.9
5°	1696.4	1692.4	1697.0	1692.0	1732.8
7.5°	1661.5	1676.7	1685.6	1680.1	1682.5
10°	1643.0	1637.7	1657.3	1671.0	1669.0
12.5°	1623.1	1631.1	1632.2	1647.0	1648.3
15°	1624.2	1605.5	1615.4	1623.8	1624.5
17.5°	1561.2	1581.4	1588.3	1607.5	1583.7
20°	1553.4	1538.7	1553.4	1573.1	1570.0
22.5°	1506.0	1489.5	1521.2	1538.7	1537.6
25°	1452.2	1460.1	1483.9	1503.4	1500.3
27.5°	1405.0	1414.2	1448.2	1474.9	1457.7
30°	1368.6	1363.9	1392.6	1416.4	1429.7
32.5°	1303.5	1320.3	1353.8	1377.4	1364.8
35°	1264.0	1267.8	1297.1	1327.1	1326.2
37.5°	1195.0	1212.4	1253.6	1262.0	1254.3
40°	1136.1	1153.5	1190.8	1199.8	1196.1
42.5°	1092.6	1095.7	1127.7	1138.1	1121.5
45°	1016.9	1035.9	1053.1	1080.3	1054.7
47.5°	952.5	961.4	998.4	1005.7	992.2
50°	894.1	897.2	934.4	925.4	916.6
52.5°	820.6	833.6	854.6	852.8	842.5
55°	760.2	755.1	775.0	769.7	769.4
57.5°	687.6	696.4	712.7	704.4	690.9
60°	619.7	619.9	625.8	616.3	614.6
62.5°	544.0	546.6	548.0	536.3	555.2
65°	467.0	460.8	478.9	460.6	463.7
67.5°	396.2	399.3	397.5	386.0	390.5
70°	324.3	328.2	325.4	312.4	316.3
72.5°	258.5	253.7	256.8	240.4	247.9
75°	194.3	190.4	193.9	180.2	186.4
77.5°	132.4	135.4	133.2	126.0	130.2
80°	87.4	84.9	84.9	80.7	81.6
82.5°	51.0	48.5	47.9	46.5	48.5
85°	23.8	23.2	23.6	22.9	22.1
87.5°	8.6	8.8	8.8	8.4	7.9
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)