

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: P560810

Luminaire Tested: FSR-12-4-LD4-1HI-35-UNV-93-94-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560810  
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-12-4-LD4-1HI-35-UNV-93-94-EDD-90  
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR TEMPER  
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

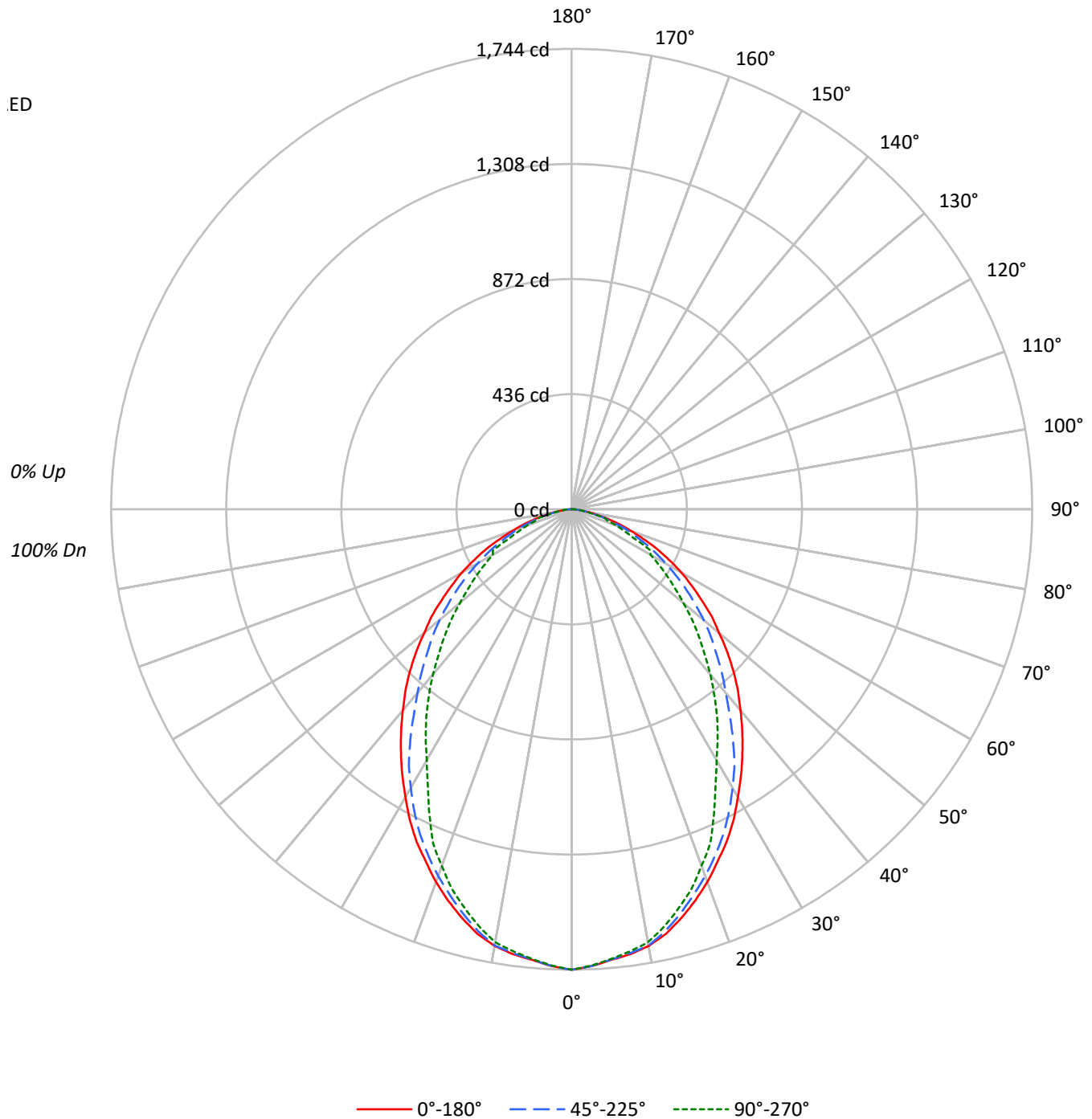
Lumens per Lamp: N/A  
Luminaire Lumens: 3424.0 lumens  
Efficiency: N/A  
Efficacy: 79.3 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 43.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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	50	30	10	0																			
RCR																																														
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																												
1	110	106	102	99	108	104	100	97	100	97	94	96	94	91	92	90	89	87																												
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	75																												
3	93	84	77	71	91	82	76	70	79	74	69	77	72	68	74	70	67	65																												
4	86	75	67	61	84	74	66	61	72	65	60	69	64	59	67	62	58	56																												
5	80	68	60	54	78	67	59	53	65	58	53	63	57	52	61	56	52	50																												
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44																												
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40																												
8	65	52	44	38	63	51	44	38	50	43	38	49	42	38	48	42	38	36																												
9	61	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	33																												
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30																												

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

	0°	45°	90°
0°	4693	4693	4693
5°	4630	4624	4619
10°	4589	4584	4551
15°	4466	4421	4359
20°	4302	4233	4117
25°	4125	4035	3784
30°	3910	3784	3408
35°	3703	3497	3153
40°	3492	3188	2869
45°	3292	2947	2594
50°	3047	2735	2313
55°	2819	2479	2072
60°	2583	2214	1856
65°	2273	1939	1643
70°	1872	1697	1396
75°	1489	1300	1363
80°	1000	938	876
85°	624	747	871

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3292 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	162.4	4.7
10°-20°	445.6	13.0
20°-30°	616.9	18.0
30°-40°	657.8	19.2
40°-50°	600.1	17.5
50°-60°	470.1	13.7
60°-70°	306.4	8.9
70°-80°	135.7	4.0
80°-90°	29.1	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°	1224.8	35.8
0°-40°	1882.6	55.0
0°-60°	2952.7	86.2
0°-90°	3424.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3424.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1744	1744	1744	1744	1744	
5°	1714	1712	1712	1710	1710	163
15°	1603	1603	1587	1571	1565	451
25°	1389	1381	1359	1311	1274	638
35°	1127	1119	1065	984	960	705
45°	865	847	774	710	682	666
55°	601	583	528	466	442	539
65°	357	337	304	310	258	352
75°	143	133	125	119	131	153
85°	20	22	24	26	28	28
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1744.1	1744.1	1744.1	1744.1	1744.1
2.5°	1732.0	1732.0	1732.0	1730.0	1730.0
5°	1713.9	1711.9	1711.9	1709.9	1709.9
7.5°	1699.8	1697.8	1695.7	1693.7	1689.7
10°	1679.6	1679.6	1677.6	1667.5	1665.5
12.5°	1647.4	1645.3	1637.3	1623.2	1619.1
15°	1603.0	1603.0	1586.9	1570.7	1564.7
17.5°	1554.6	1552.6	1532.4	1516.3	1508.2
20°	1502.2	1498.1	1478.0	1451.8	1437.7
22.5°	1443.7	1443.7	1419.5	1385.2	1371.1
25°	1389.3	1381.2	1359.0	1310.6	1274.3
27.5°	1326.8	1314.7	1290.5	1221.9	1179.6
30°	1258.2	1252.2	1217.9	1129.2	1096.9
32.5°	1193.7	1183.6	1147.3	1054.5	1028.3
35°	1127.1	1119.1	1064.6	984.0	959.8
37.5°	1060.6	1050.5	982.0	917.4	887.2
40°	994.1	982.0	907.4	848.9	816.6
42.5°	931.6	915.4	842.8	780.3	744.0
45°	865.0	846.9	774.3	709.8	681.5
47.5°	798.5	782.3	715.8	649.3	617.0
50°	727.9	713.8	653.3	586.8	552.5
52.5°	669.4	647.2	588.8	522.2	494.0
55°	600.9	582.7	528.3	465.8	441.6
57.5°	538.4	520.2	469.8	411.3	391.2
60°	479.9	453.7	411.3	360.9	344.8
62.5°	415.4	395.2	358.9	316.6	336.7
65°	356.9	336.7	304.5	310.5	258.1
67.5°	292.4	282.3	254.1	225.8	217.8
70°	237.9	225.8	215.7	185.5	177.4
72.5°	189.5	177.4	163.3	147.2	141.1
75°	143.2	133.1	125.0	119.0	131.1
77.5°	98.8	94.8	88.7	82.7	80.7
80°	64.5	62.5	60.5	58.5	56.5
82.5°	38.3	38.3	38.3	38.3	38.3
85°	20.2	22.2	24.2	26.2	28.2
87.5°	12.1	12.1	14.1	16.1	18.1
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)