

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P31803

Luminaire Tested: **FUSL-D16-354T5-UNV-82/87-EB52**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P31803  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FUSL-D16-354T5-UNV-82/87-EB52  
Description: FAIL-SAFE 1X4 FLUORESCENT 16 GAUGE CONFINEMENT-CORRECTIONAL  
FIXTURE WITH A 0.187 PRISMATIC LENS FIXTURE SIDE, A 0.375  
CLEAR POLYCARBONATE LENS ENVIRONMENTAL SIDE  
Light Source: (3) GE BIPIN T5 DOUBLE ENDED LINEAR FLUORESCENT LAMP 3500K  
F54W-T5-835-ECO  
Ballast/Driver: (2) UNIVERSAL BALLAST  
B254PUNV-D

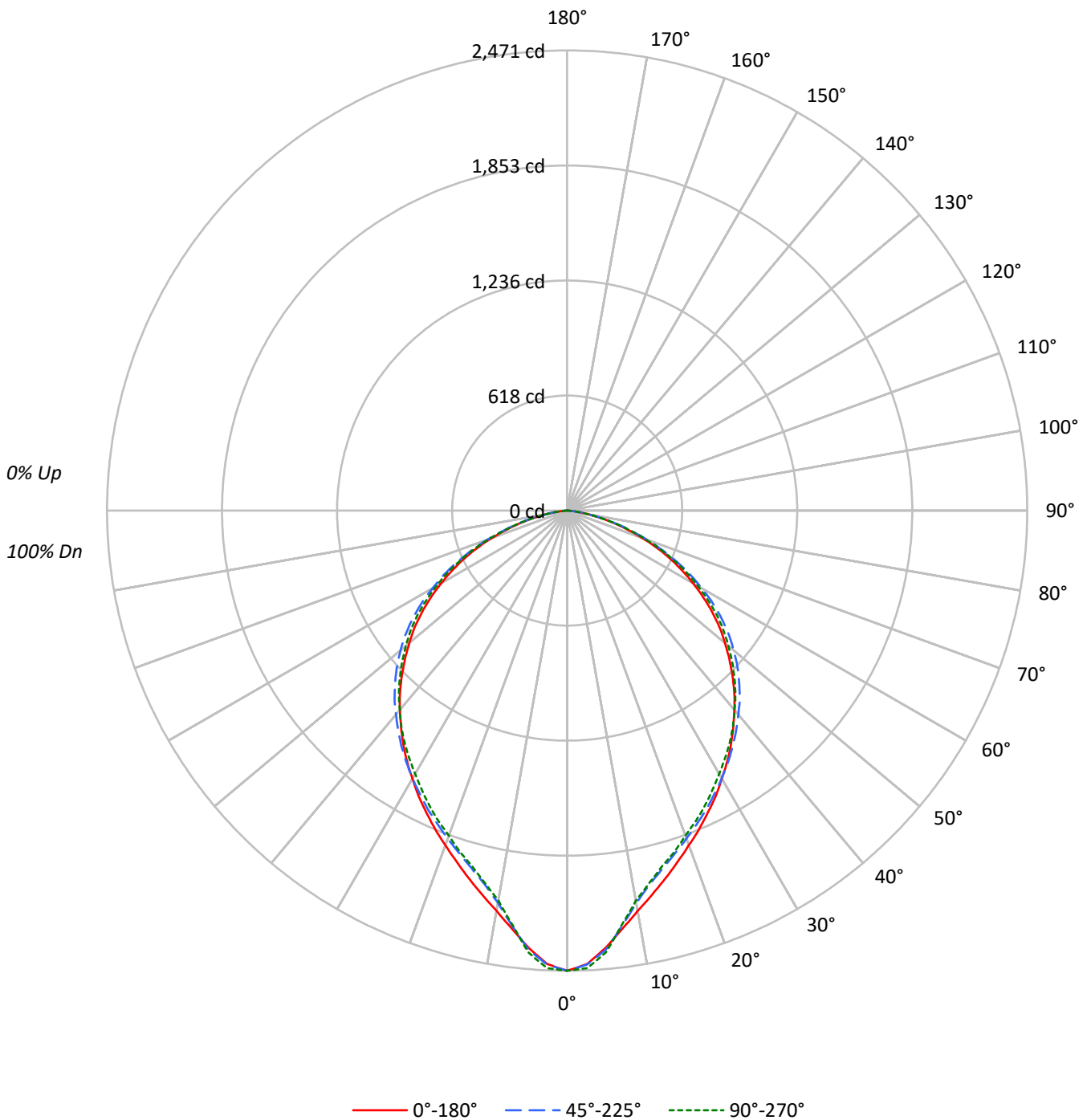
**Summary**

Lumens per Lamp: 4400 (3 lamps)  
Luminaire Lumens: 5396.9 lumens  
Efficiency: 40.9%  
Efficacy: 36.1 lumens/watt  
Spacing Criteria (0/90/45): 1.02 / 0.99 / 1.21  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 149.7  
Input Voltage (V): 120.06  
Input Current (A<sub>in</sub>): 1.250  
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: 25 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	0
RCR																				
0	49	49	49	49	48	48	48	48	45	45	45		43	43	43		42	42	42	41
1	45	43	41	40	44	42	41	39	40	39	38		39	38	37		37	36	36	35
2	41	38	35	33	40	37	34	32	35	33	32		34	32	31		33	32	30	29
3	37	33	30	27	36	33	30	27	31	29	27		30	28	26		29	27	26	25
4	34	30	26	23	33	29	26	23	28	25	23		27	25	23		26	24	22	21
5	32	26	23	20	31	26	23	20	25	22	20		24	22	20		24	21	19	19
6	29	24	20	18	28	23	20	18	23	20	17		22	19	17		21	19	17	16
7	27	22	18	16	26	21	18	16	21	18	16		20	17	15		20	17	15	14
8	25	20	16	14	25	20	16	14	19	16	14		18	16	14		18	16	14	13
9	24	18	15	13	23	18	15	13	17	15	13		17	14	12		17	14	12	12
10	22	17	14	12	22	17	14	11	16	13	11		16	13	11		15	13	11	11

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

	0°	45°	90°
0°	6649	6649	6649
5°	6370	6397	6434
10°	5965	5842	5812
15°	5692	5536	5502
20°	5475	5367	5318
25°	5312	5255	5193
30°	5164	5161	5074
35°	5039	5089	5000
40°	4907	5023	4914
45°	4776	4970	4833
50°	4630	4890	4731
55°	4462	4753	4607
60°	4203	4489	4370
65°	3884	4126	4024
70°	3383	3572	3501
75°	2682	2828	2797
80°	1782	1844	1813
85°	772	772	834



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	218.6	4.1	1.7	0°	2471	2471	2471	2471	2471	
10°-20°	564.5	10.5	4.3	5°	2358	2368	2368	2375	2382	219
20°-30°	817.2	15.1	6.2	15°	2043	2020	1987	1979	1975	576
30°-40°	965.6	17.9	7.3	25°	1789	1790	1770	1763	1749	825
40°-50°	993.6	18.4	7.5	35°	1534	1554	1549	1544	1522	959
50°-60°	883.1	16.4	6.7	45°	1255	1290	1306	1298	1270	968
60°-70°	625.7	11.6	4.7	55°	951	982	1013	1000	982	848
70°-80°	286.5	5.3	2.2	65°	610	623	648	642	632	600
80°-90°	42.2	0.8	0.3	75°	258	259	272	270	269	277
90°-100°	0.0	0.0	0.0	85°	25	26	25	27	27	41
100°-110°	0.0	0.0	0.0	90°	0	0	0	0	0	
110°-120°	0.0	0.0	0.0							
120°-130°	0.0	0.0	0.0							
130°-140°	0.0	0.0	0.0							
140°-150°	0.0	0.0	0.0							
150°-160°	0.0	0.0	0.0							
160°-170°	0.0	0.0	0.0							
170°-180°	0.0	0.0	0.0							
0°-30°	1600.3	29.7	12.1							
0°-40°	2565.9	47.5	19.4							
0°-60°	4442.6	82.3	33.7							
0°-90°	5396.9	100.0	40.9							
90°-120°	0.0	0.0	0.0							
90°-150°	0.0	0.0	0.0							
90°-180°	0.0	0.0	0.0							
0°-180°	5396.9	100.0	40.9							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2471	2471	2471	2471	2471
2.5°	2437	2442	2440	2453	2459
5°	2358	2368	2368	2375	2382
7.5°	2265	2265	2251	2244	2244
10°	2183	2170	2138	2124	2127
12.5°	2111	2088	2053	2044	2046
15°	2043	2020	1987	1979	1975
17.5°	1976	1959	1929	1922	1919
20°	1912	1901	1874	1870	1857
22.5°	1852	1845	1821	1817	1805
25°	1789	1790	1770	1763	1749
27.5°	1728	1731	1714	1711	1690
30°	1662	1672	1661	1657	1633
32.5°	1599	1614	1605	1602	1577
35°	1534	1554	1549	1544	1522
37.5°	1465	1490	1490	1484	1462
40°	1397	1428	1430	1422	1399
42.5°	1329	1359	1372	1360	1338
45°	1255	1290	1306	1298	1270
47.5°	1181	1219	1240	1225	1202
50°	1106	1144	1168	1154	1130
52.5°	1033	1066	1094	1080	1059
55°	951	982	1013	1000	982
57.5°	867	898	929	917	898
60°	781	808	834	829	812
62.5°	694	713	745	736	725
65°	610	623	648	642	632
67.5°	519	531	552	547	540
70°	430	437	454	456	445
72.5°	339	345	361	359	355
75°	258	259	272	270	269
77.5°	184	182	188	192	185
80°	115	117	119	121	117
82.5°	64	63	63	64	64
85°	25	26	25	27	27
87.5°	6	6	6	7	8
90°	0	0	0	0	0

(END OF REPORT)