

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: P31800

Luminaire Tested: **FUSL-D12-354T5-UNV-80/86-EB52**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P31800  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FUSL-D12-354T5-UNV-80/86-EB52  
Description: FAIL-SAFE 1X4 FLUORESCENT 16 GAUGE CONFINEMENT-CORRECTIONAL  
FIXTURE WITH A 0.125 PRISMATIC LENS FIXTURE SIDE, A 0.250  
CLEAR POLYCARBONATE LENS ENVIRONMENTAL SIDE  
Light Source: (3) GE BIPIN T5 DOUBLE ENDED LINEAR FLUORESCENT LAMP 3500K  
F54W-T5-835-ECO  
Ballast/Driver: (1) UNIVERSAL BALLAST  
B454PUNV-D

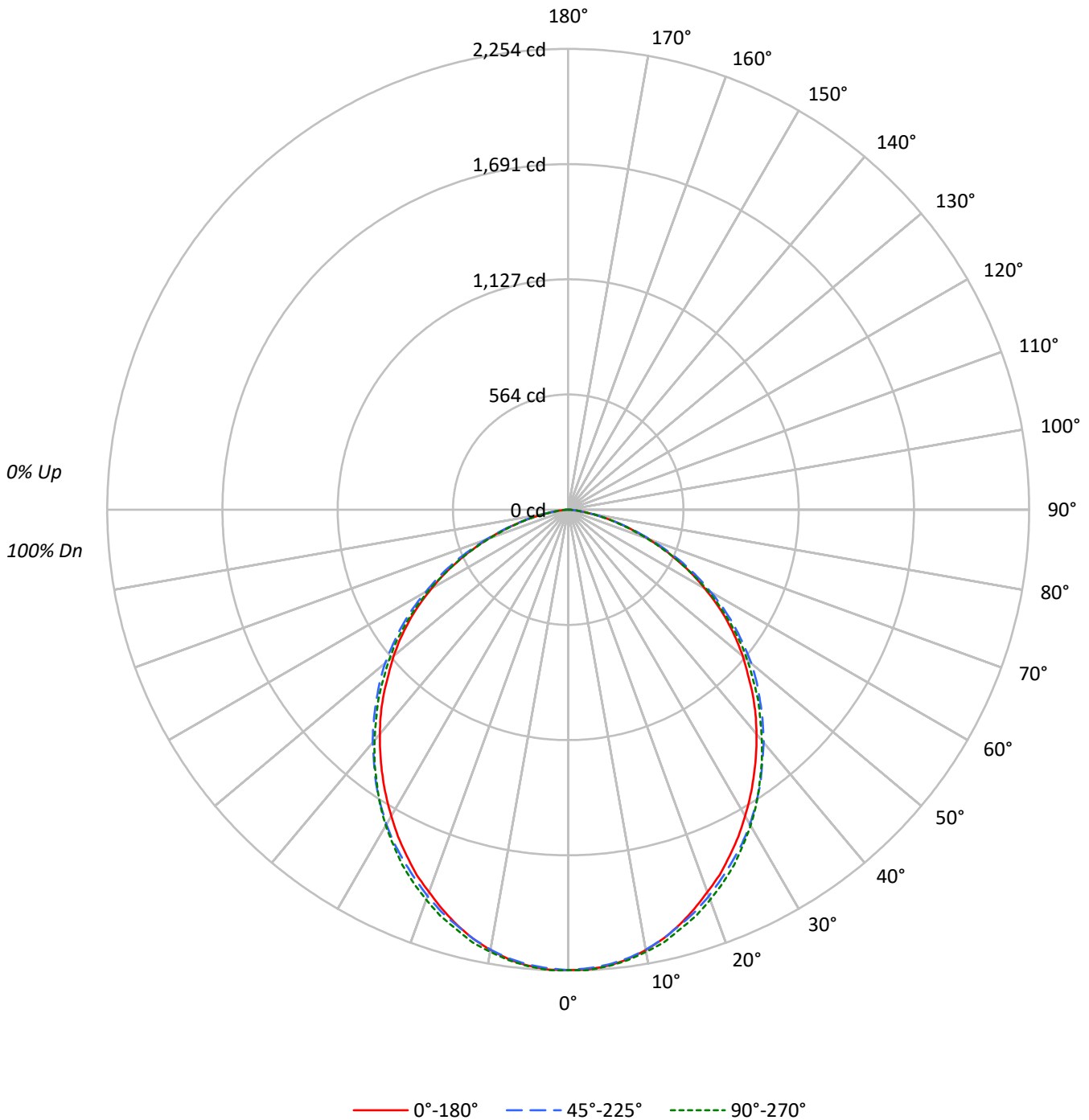
**Summary**

Lumens per Lamp: 4400 (3 lamps)  
Luminaire Lumens: 5499.3 lumens  
Efficiency: 41.7%  
Efficacy: 39.1 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.3  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 140.6  
Input Voltage (V): 120.10  
Input Current (A<sub>in</sub>): 1.174  
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	50	50	50	50	48	48	48	48	46	46	46	44	44	44	43	43	43	42
1	46	44	42	41	45	43	41	40	41	40	39	40	39	38	38	37	37	36
2	42	39	36	34	41	38	35	33	36	34	32	35	33	32	34	32	31	30
3	38	34	31	28	37	33	30	28	32	30	27	31	29	27	30	28	27	26
4	35	30	27	24	34	30	26	24	29	26	24	28	25	23	27	25	23	22
5	32	27	24	21	31	27	23	21	26	23	21	25	22	20	24	22	20	19
6	30	25	21	18	29	24	21	18	23	20	18	23	20	18	22	20	18	17
7	28	22	19	16	27	22	19	16	21	18	16	21	18	16	20	18	16	15
8	26	20	17	15	25	20	17	15	20	17	14	19	16	14	19	16	14	13
9	24	19	15	13	24	18	15	13	18	15	13	18	15	13	17	15	13	12
10	23	17	14	12	22	17	14	12	17	14	12	16	14	12	16	14	12	11

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

	0°	45°	90°
0°	6060	6060	6060
5°	6048	6035	6054
10°	5976	5970	6001
15°	5856	5864	5912
20°	5699	5759	5813
25°	5546	5635	5695
30°	5376	5522	5543
35°	5204	5378	5361
40°	5030	5224	5174
45°	4852	5050	4993
50°	4664	4894	4785
55°	4452	4654	4541
60°	4155	4332	4225
65°	3769	3935	3789
70°	3289	3367	3194
75°	2630	2672	2568
80°	1782	1813	1767
85°	834	1050	1112



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	212.2	3.9	1.6	0°	2252	2252	2252	2252	2252	
10°-20°	594.9	10.8	4.5	5°	2239	2240	2234	2241	2241	212
20°-30°	874.0	15.9	6.6	15°	2102	2107	2105	2119	2122	592
30°-40°	1015.3	18.5	7.7	25°	1868	1886	1898	1916	1918	860
40°-50°	1012.5	18.4	7.7	35°	1584	1607	1637	1642	1632	991
50°-60°	870.4	15.8	6.6	45°	1275	1304	1327	1328	1312	983
60°-70°	600.1	10.9	4.5	55°	949	968	992	986	968	846
70°-80°	273.1	5.0	2.1	65°	592	604	618	612	595	587
80°-90°	47.0	0.9	0.4	75°	253	254	257	255	247	270
90°-100°	0.0	0.0	0.0	85°	27	31	34	35	36	43
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°	1681.0	30.6	12.7							
0°-40°	2696.3	49.0	20.4							
0°-60°	4579.2	83.3	34.7							
0°-90°	5499.3	100.0	41.7							
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°	5499.3	100.0	41.7							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2252	2252	2252	2252	2252
2.5°	2251	2252	2245	2253	2254
5°	2239	2240	2234	2241	2241
7.5°	2218	2220	2214	2221	2223
10°	2187	2190	2185	2195	2196
12.5°	2149	2150	2149	2159	2167
15°	2102	2107	2105	2119	2122
17.5°	2048	2056	2062	2074	2082
20°	1990	2004	2011	2026	2030
22.5°	1934	1947	1955	1971	1976
25°	1868	1886	1898	1916	1918
27.5°	1802	1822	1841	1853	1850
30°	1730	1753	1777	1787	1784
32.5°	1658	1680	1708	1714	1711
35°	1584	1607	1637	1642	1632
37.5°	1509	1534	1559	1567	1555
40°	1432	1459	1487	1486	1473
42.5°	1356	1383	1408	1407	1390
45°	1275	1304	1327	1328	1312
47.5°	1191	1224	1250	1243	1225
50°	1114	1141	1169	1156	1143
52.5°	1033	1055	1079	1068	1058
55°	949	968	992	986	968
57.5°	862	884	900	890	876
60°	772	789	805	798	785
62.5°	684	699	713	705	685
65°	592	604	618	612	595
67.5°	502	515	523	515	499
70°	418	424	428	422	406
72.5°	330	337	340	336	322
75°	253	254	257	255	247
77.5°	176	178	183	179	179
80°	115	116	117	117	114
82.5°	66	66	68	67	66
85°	27	31	34	35	36
87.5°	7	12	16	19	19
90°	0	0	0	0	0

(END OF REPORT)