

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: P31801

Luminaire Tested: **FUSL-D12-354T5-UNV-82/87-EB52**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P31801
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-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: (1) UNIVERSAL BALLAST
B454PUNV-D

Summary

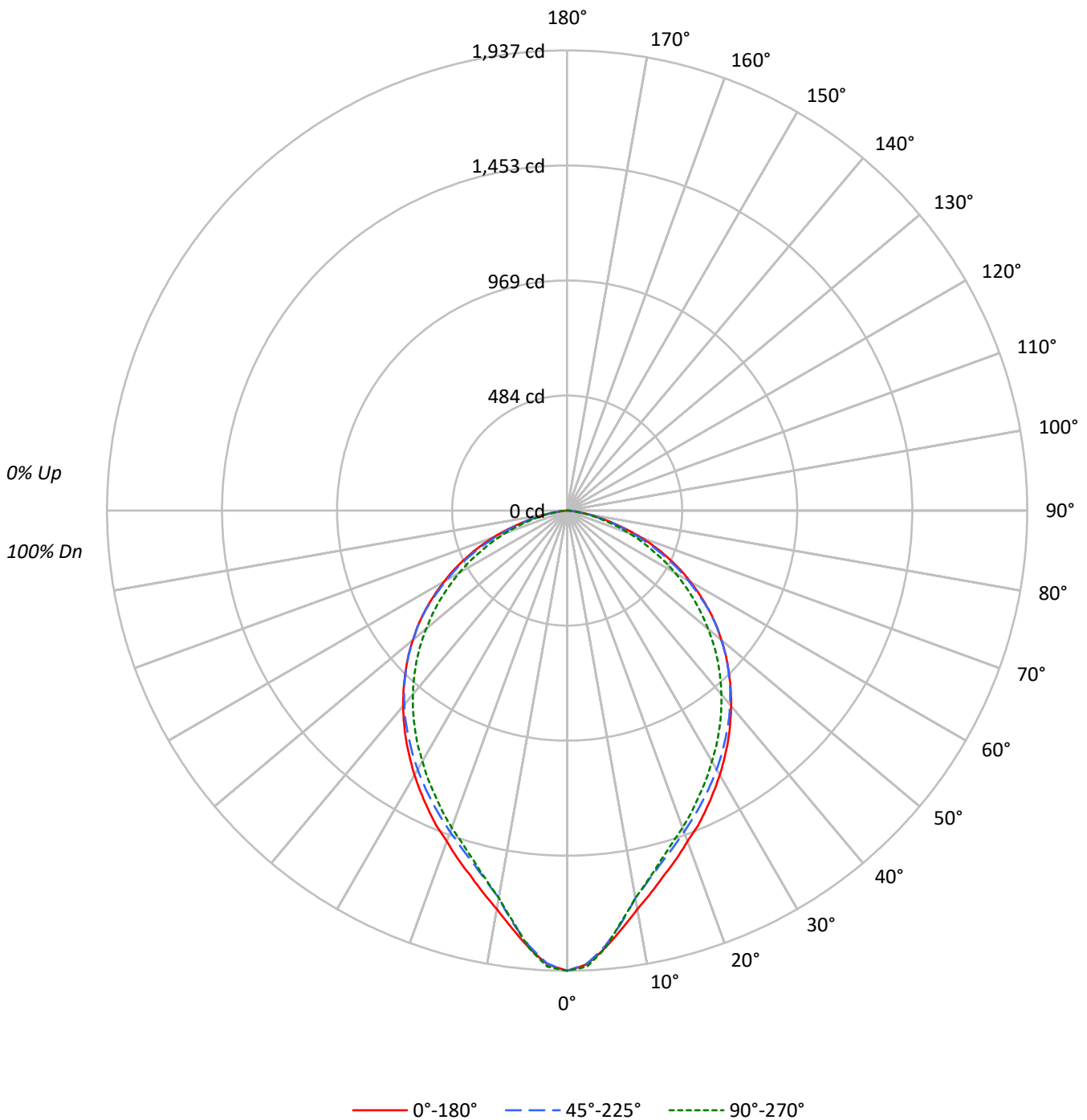
Lumens per Lamp: 4400 (3 lamps)
Luminaire Lumens: 3995.8 lumens
Efficiency: 30.3%
Efficacy: 28.4 lumens/watt
Spacing Criteria (0/90/45): 1 / 0.95 / 1.18
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 140.5
Input Voltage (V): 120.09
Input Current (A_{in}): 1.173
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	50	30	10	0	
RCR																						
0	36	36	36	36	35	35	35	35	34	34	34	32	32	32	31	31	31	30				30
1	33	32	31	30	32	31	30	29	30	29	28	29	28	27	28	27	27	26				26
2	30	28	26	24	30	27	26	24	26	25	24	25	24	23	24	23	23	22				22
3	28	25	22	21	27	24	22	20	23	22	20	23	21	20	22	20	19	19				19
4	26	22	19	18	25	22	19	17	21	19	17	20	18	17	20	18	17	16				16
5	24	20	17	15	23	19	17	15	19	17	15	18	16	15	18	16	15	14				14
6	22	18	15	13	21	18	15	13	17	15	13	17	15	13	16	14	13	12				12
7	20	16	14	12	20	16	14	12	16	13	12	15	13	12	15	13	12	11				11
8	19	15	12	11	18	15	12	11	14	12	11	14	12	10	14	12	10	10				10
9	18	14	11	10	17	14	11	10	13	11	10	13	11	9	13	11	9	9				9
10	17	13	10	9	16	13	10	9	12	10	9	12	10	9	12	10	9	8				8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5212	5212	5212
5°	4989	4968	4992
10°	4653	4525	4525
15°	4418	4274	4246
20°	4241	4121	4066
25°	4115	4005	3916
30°	3993	3909	3785
35°	3883	3824	3673
40°	3773	3745	3548
45°	3665	3657	3414
50°	3550	3542	3240
55°	3415	3401	3059
60°	3218	3159	2826
65°	2967	2872	2515
70°	2596	2455	2172
75°	2048	1955	1695
80°	1348	1333	1178
85°	556	772	803



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	170.4	4.3	1.3	0°	1937	1937	1937	1937	1937	
10°-20°	436.7	10.9	3.3	5°	1847	1849	1839	1851	1848	172
20°-30°	624.2	15.6	4.7	15°	1586	1571	1534	1528	1524	447
30°-40°	726.9	18.2	5.5	25°	1386	1379	1349	1335	1319	638
40°-50°	732.3	18.3	5.5	35°	1182	1190	1164	1143	1118	739
50°-60°	633.2	15.8	4.8	45°	963	980	961	927	897	743
60°-70°	438.3	11.0	3.3	55°	728	739	725	686	652	649
70°-80°	199.3	5.0	1.5	65°	466	466	451	424	395	461
80°-90°	34.5	0.9	0.3	75°	197	194	188	177	163	212
90°-100°	0.0	0.0	0.0	85°	18	22	25	27	26	31
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°	1231.2	30.8	9.3							
0°-40°	1958.2	49.0	14.8							
0°-60°	3323.6	83.2	25.2							
0°-90°	3995.8	100.0	30.3							
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°	3995.8	100.0	30.3							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1937	1937	1937	1937	1937
2.5°	1912	1912	1909	1918	1921
5°	1847	1849	1839	1851	1848
7.5°	1774	1762	1750	1750	1745
10°	1703	1688	1656	1656	1656
12.5°	1644	1625	1591	1586	1588
15°	1586	1571	1534	1528	1524
17.5°	1535	1520	1486	1477	1468
20°	1481	1474	1439	1428	1420
22.5°	1437	1427	1394	1383	1371
25°	1386	1379	1349	1335	1319
27.5°	1335	1331	1304	1288	1271
30°	1285	1286	1258	1243	1218
32.5°	1233	1239	1212	1193	1170
35°	1182	1190	1164	1143	1118
37.5°	1128	1142	1117	1092	1065
40°	1074	1089	1066	1039	1010
42.5°	1019	1037	1016	984	954
45°	963	980	961	927	897
47.5°	907	924	907	870	837
50°	848	864	846	810	774
52.5°	790	803	789	748	713
55°	728	739	725	686	652
57.5°	664	674	655	625	587
60°	598	604	587	557	525
62.5°	535	535	521	489	462
65°	466	466	451	424	395
67.5°	401	396	380	360	337
70°	330	326	312	295	276
72.5°	260	258	247	234	217
75°	197	194	188	177	163
77.5°	138	138	131	128	116
80°	87	89	86	82	76
82.5°	47	50	49	49	47
85°	18	22	25	27	26
87.5°	4	9	13	16	16
90°	0	0	0	0	0

(END OF REPORT)