

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: 168P192

Luminaire Tested: **FUS16LP-N-354-80/86**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: 168P192
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FUS16LP-N-354-80/86
Description: FAIL-SAFE FUS SERIES LUMINAIRE
Light Source: THREE - F54T5/841 HO - 4400 LUMENS EA. - 54 WATTS EA.
Ballast/Driver: TWO - ADVANCE ICN-2S54

Summary

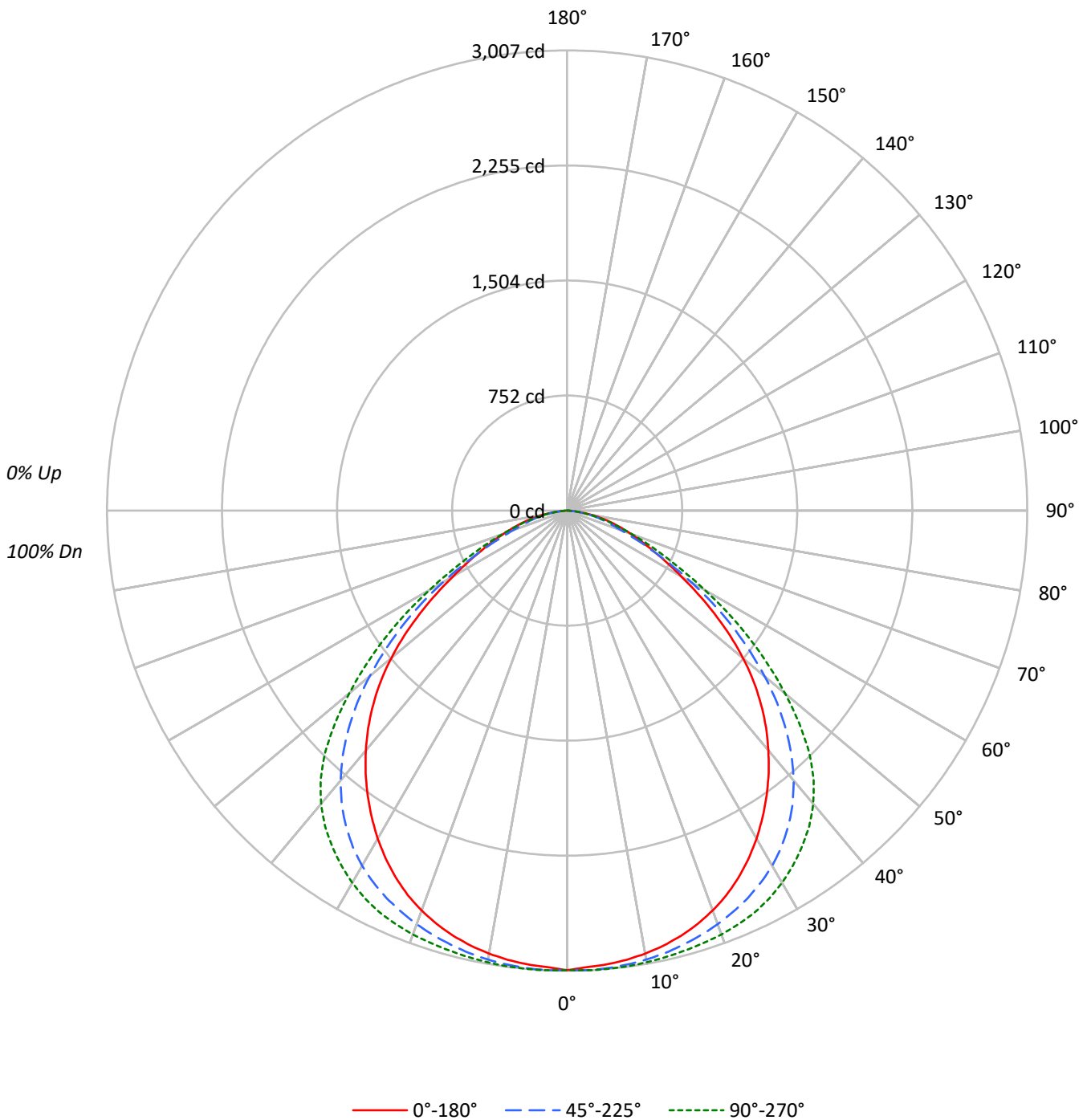
Lumens per Lamp: 4400 (3 lamps)
Luminaire Lumens: 7659.5 lumens
Efficiency: 58.0%
Efficacy: 45.3 lumens/watt
Spacing Criteria (0/90/45): 1.22 / 1.38 / 1.39
Luminous Opening: Rectangular (W 1.03' x L: 3.92' x H: 0')
CIE Type: Direct

Input Watts (W): 169
Input Voltage (V): NR
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: 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	69	69	69	69	67	67	67	67	64	64	64	62	62	62	59	59	59	58
1	64	61	59	57	62	60	58	56	58	56	55	56	54	53	53	52	51	50
2	59	54	51	48	57	53	50	47	51	49	46	49	47	45	48	46	44	43
3	54	48	44	40	52	47	43	40	46	42	39	44	41	39	43	40	38	37
4	50	43	38	35	48	42	38	34	41	37	34	40	36	34	38	35	33	32
5	46	39	34	30	45	38	33	30	37	33	30	36	32	29	35	32	29	28
6	42	35	30	26	41	34	30	26	33	29	26	32	29	26	32	28	26	25
7	39	32	27	23	38	31	27	23	30	26	23	30	26	23	29	25	23	22
8	37	29	24	21	36	29	24	21	28	24	21	27	23	21	27	23	21	20
9	34	27	22	19	33	26	22	19	26	22	19	25	21	19	24	21	19	18
10	32	25	20	17	31	24	20	17	24	20	17	23	20	17	23	19	17	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8006	8006	8006
5°	7967	8034	8047
10°	7959	8064	8113
15°	7938	8106	8214
20°	7890	8159	8364
25°	7789	8216	8525
30°	7619	8250	8647
35°	7397	8201	8716
40°	7120	8015	8707
45°	6756	7623	8438
50°	6225	6988	7710
55°	5461	6117	6749
60°	4596	5001	5540
65°	3886	3823	4384
70°	3422	2915	3492
75°	3039	2503	2833
80°	2395	2103	2180
85°	1285	1224	1193



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	285.4	3.7	2.2	0°	3003	3003	3003	3003	3003	
10°-20°	828.9	10.8	6.3	5°	2977	2990	3002	3007	3007	283
20°-30°	1282.8	16.7	9.7	15°	2876	2902	2937	2967	2976	811
30°-40°	1559.3	20.4	11.8	25°	2648	2700	2793	2871	2898	1218
40°-50°	1545.7	20.2	11.7	35°	2273	2358	2520	2639	2678	1420
50°-60°	1166.8	15.2	8.8	45°	1792	1866	2022	2163	2238	1377
60°-70°	645.2	8.4	4.9	55°	1175	1202	1316	1390	1452	1051
70°-80°	288.2	3.8	2.2	65°	616	636	606	650	695	622
80°-90°	57.2	0.7	0.4	75°	295	282	243	266	275	312
90°-100°	0.0	0.0	0.0	85°	42	43	40	39	39	60
100°-110°	0.0	0.0	0.0	90°	0	0	0	0	0	1
110°-120°	0.0	0.0	0.0	95°	0	0	0	0	0	0
120°-130°	0.0	0.0	0.0	105°	0	0	0	0	0	0
130°-140°	0.0	0.0	0.0	115°	0	0	0	0	0	0
140°-150°	0.0	0.0	0.0	125°	0	0	0	0	0	0
150°-160°	0.0	0.0	0.0	135°	0	0	0	0	0	0
160°-170°	0.0	0.0	0.0	145°	0	0	0	0	0	0
170°-180°	0.0	0.0	0.0	155°	0	0	0	0	0	0
0°-30°	2397.1	31.3	18.2	165°	0	0	0	0	0	0
0°-40°	3956.5	51.7	30.0	175°	0	0	0	0	0	0
0°-60°	6668.9	87.1	50.5	180°	0	0	0	0	0	0
0°-90°	7659.5	100.0	58.0							
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°	7659.5	100.0	58.0							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3003	3003	3003	3003	3003
2.5°	2986	2998	3006	3008	3007
5°	2977	2990	3002	3007	3007
7.5°	2961	2977	2993	3003	3004
10°	2940	2958	2979	2994	2997
12.5°	2912	2934	2961	2982	2988
15°	2876	2902	2937	2967	2976
17.5°	2833	2863	2909	2949	2963
20°	2781	2817	2876	2928	2948
22.5°	2720	2763	2837	2903	2925
25°	2648	2700	2793	2871	2898
27.5°	2566	2627	2741	2832	2859
30°	2475	2544	2680	2780	2809
32.5°	2377	2453	2606	2715	2748
35°	2273	2358	2520	2639	2678
37.5°	2163	2254	2420	2547	2599
40°	2046	2139	2303	2439	2502
42.5°	1924	2009	2170	2311	2384
45°	1792	1866	2022	2163	2238
47.5°	1653	1712	1861	1993	2057
50°	1501	1548	1685	1804	1859
52.5°	1342	1374	1501	1602	1657
55°	1175	1202	1316	1390	1452
57.5°	1013	1044	1127	1182	1245
60°	862	899	938	979	1039
62.5°	731	761	761	800	852
65°	616	636	606	650	695
67.5°	520	529	476	524	563
70°	439	437	374	422	448
72.5°	365	357	300	338	355
75°	295	282	243	266	275
77.5°	226	212	191	200	207
80°	156	148	137	137	142
82.5°	94	91	85	82	83
85°	42	43	40	39	39
87.5°	10	12	12	12	12
90°	0	0	0	0	0
92.5°	0	0	0	0	0
95°	0	0	0	0	0
97.5°	0	0	0	0	0
100°	0	0	0	0	0
102.5°	0	0	0	0	0
105°	0	0	0	0	0
107.5°	0	0	0	0	0
110°	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0	0	0	0	0
115°	0	0	0	0	0
117.5°	0	0	0	0	0
120°	0	0	0	0	0
122.5°	0	0	0	0	0
125°	0	0	0	0	0
127.5°	0	0	0	0	0
130°	0	0	0	0	0
132.5°	0	0	0	0	0
135°	0	0	0	0	0
137.5°	0	0	0	0	0
140°	0	0	0	0	0
142.5°	0	0	0	0	0
145°	0	0	0	0	0
147.5°	0	0	0	0	0
150°	0	0	0	0	0
152.5°	0	0	0	0	0
155°	0	0	0	0	0
157.5°	0	0	0	0	0
160°	0	0	0	0	0
162.5°	0	0	0	0	0
165°	0	0	0	0	0
167.5°	0	0	0	0	0
170°	0	0	0	0	0
172.5°	0	0	0	0	0
175°	0	0	0	0	0
177.5°	0	0	0	0	0
180°	0	0	0	0	0

(END OF REPORT)