

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: 168P193

Luminaire Tested: **FUS16LP-N-454-80/86**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: 168P193
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FUS16LP-N-454-80/86
Description: FAIL-SAFE FUS SERIES LUMINAIRE
Light Source: FOUR - F54T5/841 HO - 4400 LUMENS EA. - 54 WATTS EA.
Ballast/Driver: TWO - ADVANCE ICN-2S54

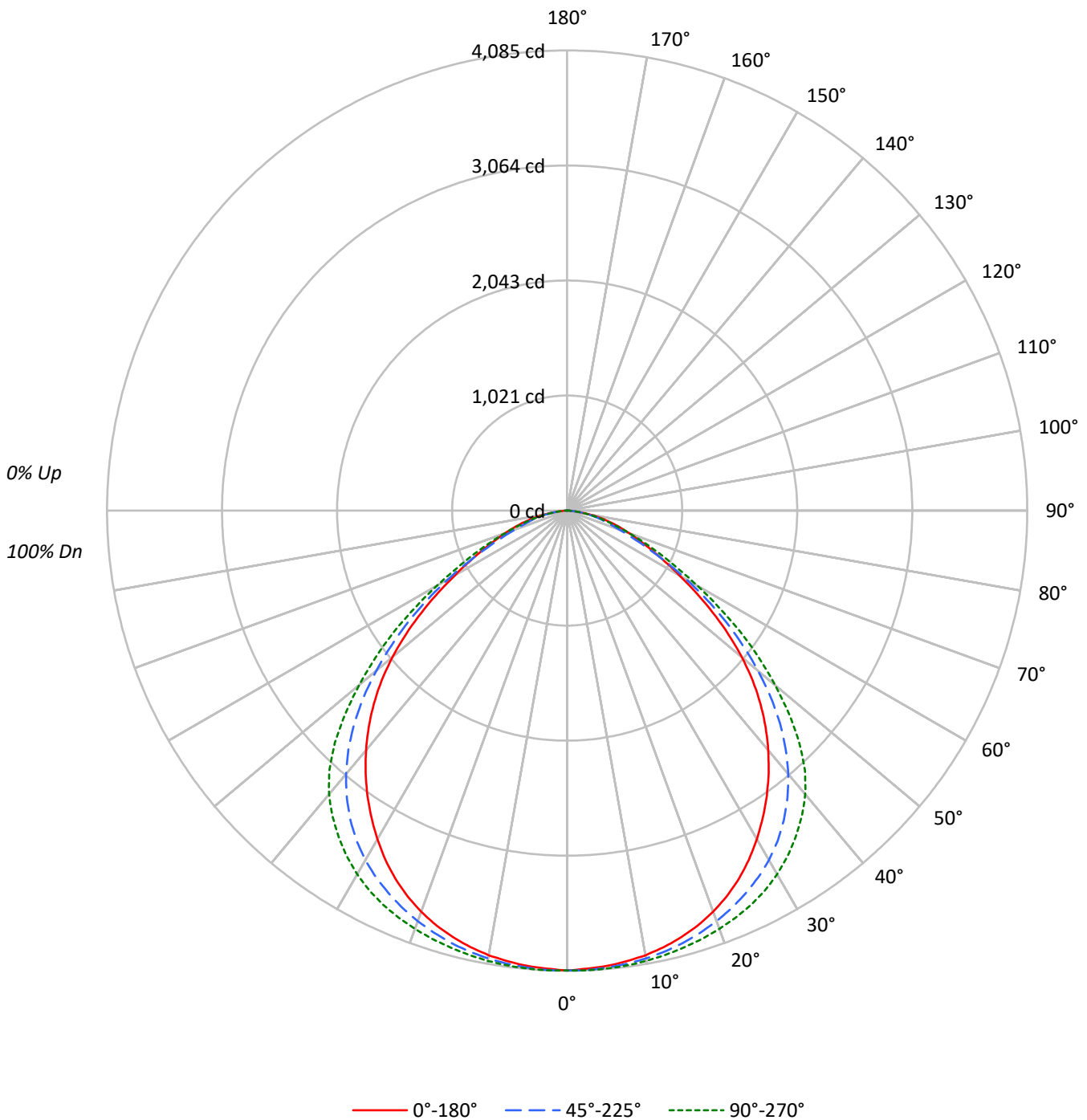
Summary

Lumens per Lamp: 4400 (4 lamps)
Luminaire Lumens: 10185.1 lumens
Efficiency: 57.9%
Efficacy: 49.2 lumens/watt
Spacing Criteria (0/90/45): 1.22 / 1.35 / 1.37
Luminous Opening: Rectangular (W 1.03' x L: 3.92' x H: 0')
CIE Type: Direct

Input Watts (W): 207
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		55	54	53		53	52	51	50
2	59	54	51	48	57	53	50	47	51	48	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	49	43	38	35	48	42	38	35	41	37	34		40	36	34		38	36	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	27	41	34	30	26	33	29	26		32	29	26		32	28	26	25
7	39	32	27	24	38	31	27	24	30	26	23		30	26	23		29	26	23	22
8	37	29	24	21	36	29	24	21	28	24	21		27	24	21		27	23	21	20
9	34	27	22	19	33	26	22	19	26	22	19		25	21	19		25	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°	10885	10885	10885
5°	10860	10900	10921
10°	10850	10928	10988
15°	10819	10968	11078
20°	10749	11002	11209
25°	10610	11028	11360
30°	10368	11027	11476
35°	10056	10916	11511
40°	9664	10628	11446
45°	9150	10070	10994
50°	8403	9174	9995
55°	7334	7990	8710
60°	6148	6500	7107
65°	5192	4958	5703
70°	4568	3812	4552
75°	4048	3286	3729
80°	3193	2733	2856
85°	1682	1591	1529



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	387.5	3.8	2.2	0°	4083	4083	4083	4083	4083	
10°-20°	1121.5	11.0	6.4	5°	4058	4061	4073	4082	4081	386
20°-30°	1724.1	16.9	9.8	15°	3920	3934	3974	4006	4014	1106
30°-40°	2080.6	20.4	11.8	25°	3607	3650	3749	3836	3862	1659
40°-50°	2044.8	20.1	11.6	35°	3090	3172	3354	3493	3537	1930
50°-60°	1529.2	15.0	8.7	45°	2427	2493	2671	2830	2916	1864
60°-70°	844.0	8.3	4.8	55°	1578	1599	1719	1801	1874	1412
70°-80°	378.9	3.7	2.2	65°	823	842	786	841	904	831
80°-90°	74.4	0.7	0.4	75°	393	371	319	349	362	416
90°-100°	0.0	0.0	0.0	85°	55	56	52	50	50	79
100°-110°	0.0	0.0	0.0	90°	0	0	0	0	0	2
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°	3233.1	31.7	18.4	165°	0	0	0	0	0	0
0°-40°	5313.7	52.2	30.2	175°	0	0	0	0	0	0
0°-60°	8887.7	87.3	50.5	180°	0	0	0	0	0	0
0°-90°	10185.1	100.0	57.9							
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°	10185.1	100.0	57.9							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4083	4083	4083	4083	4083
2.5°	4070	4073	4083	4087	4085
5°	4058	4061	4073	4082	4081
7.5°	4036	4042	4058	4071	4073
10°	4008	4015	4037	4056	4059
12.5°	3969	3979	4009	4034	4039
15°	3920	3934	3974	4006	4014
17.5°	3861	3880	3930	3972	3986
20°	3789	3815	3878	3933	3951
22.5°	3705	3739	3819	3888	3910
25°	3607	3650	3749	3836	3862
27.5°	3494	3548	3672	3774	3802
30°	3368	3431	3582	3699	3728
32.5°	3233	3305	3477	3603	3639
35°	3090	3172	3354	3493	3537
37.5°	2938	3028	3213	3365	3421
40°	2777	2869	3054	3216	3289
42.5°	2607	2691	2873	3039	3125
45°	2427	2493	2671	2830	2916
47.5°	2234	2284	2453	2598	2671
50°	2026	2062	2212	2346	2410
52.5°	1805	1828	1966	2080	2147
55°	1578	1599	1719	1801	1874
57.5°	1355	1388	1468	1522	1595
60°	1153	1191	1219	1260	1333
62.5°	976	1007	988	1032	1100
65°	823	842	786	841	904
67.5°	695	701	620	683	732
70°	586	579	489	552	584
72.5°	487	471	393	443	462
75°	393	371	319	349	362
77.5°	300	279	250	262	272
80°	208	194	178	180	186
82.5°	124	118	109	107	110
85°	55	56	52	50	50
87.5°	13	15	15	15	16
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)