

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: 168P187

Luminaire Tested: **FMS24LP-N-354-80/86**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: 168P187
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FMS24LP-N-354-80/86
Description: FAIL-SAFE FMS SERIES LUMINAIRE
Light Source: THREE - TL554W/830 - 4400 LUMENS EA. - 54 WATTS EA.
Ballast/Driver: TWO - ADVANCE ICN-2S54

Summary

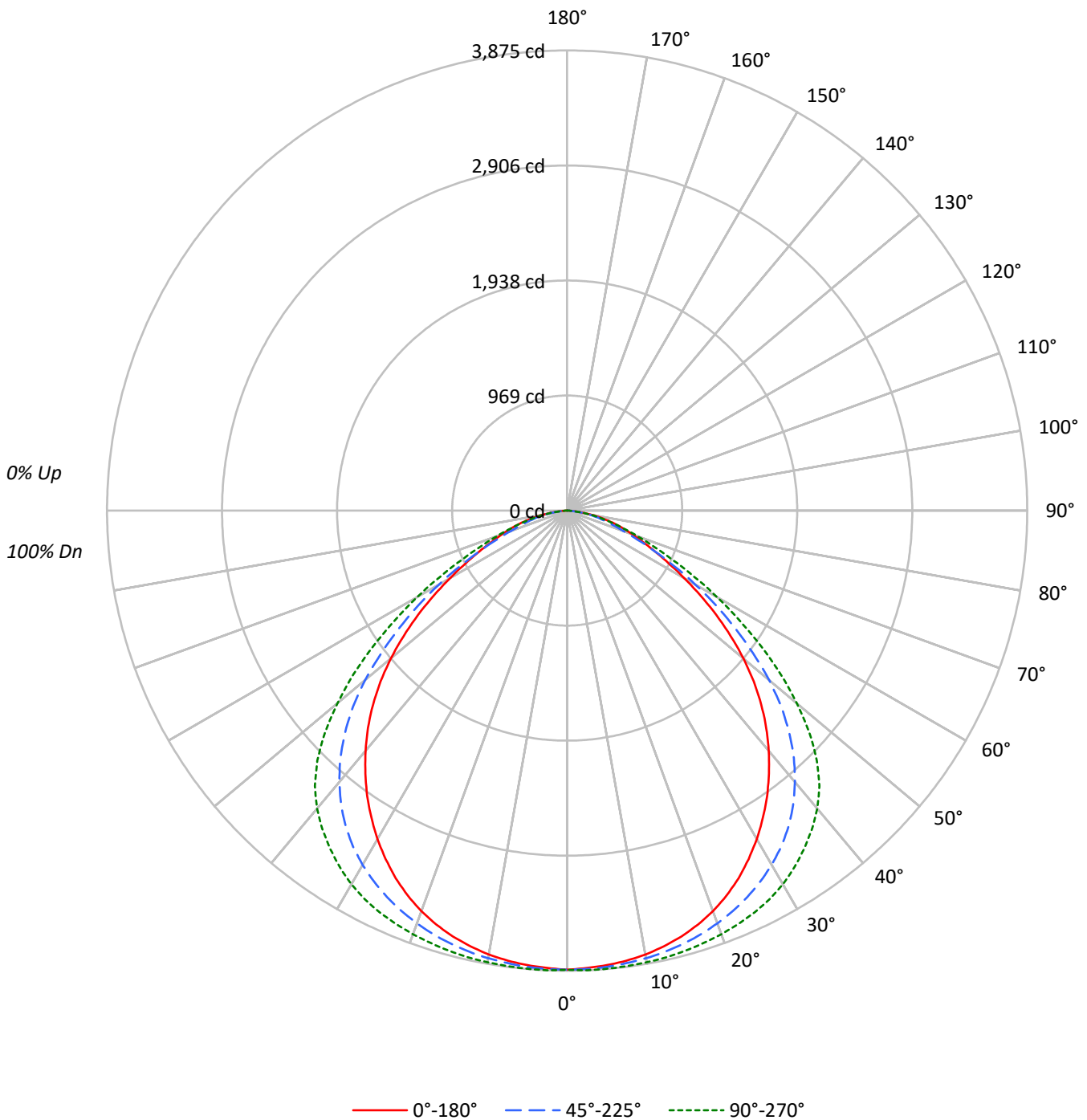
Lumens per Lamp: 4400 (3 lamps)
Luminaire Lumens: 10006.2 lumens
Efficiency: 75.8%
Efficacy: 55.6 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.39 / 1.4
Luminous Opening: Rectangular (W 1.54' x L: 3.69' x H: 0')
CIE Type: Direct

Input Watts (W): 180
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									
RC	80									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	50	30	10	0													
RCR																																					
0	90	90	90	90	88	88	88	88	84	84	84	81	81	81	77	77	77	76	76	76	76	76	76	76													
1	83	80	77	75	81	79	76	74	75	73	71	72	71	69	70	68	67	66	66	66	66	66	66	66													
2	77	71	66	62	75	69	65	62	67	63	60	64	61	59	62	60	57	56	56	56	56	56	56	56													
3	70	63	57	53	68	62	56	52	59	55	51	57	54	50	56	52	49	48	48	48	48	48	48	48													
4	65	56	50	45	63	55	49	45	53	48	44	51	47	44	50	46	43	41	41	41	41	41	41	41													
5	60	50	44	39	58	49	43	39	48	43	38	46	42	38	45	41	38	36	36	36	36	36	36	36													
6	55	45	39	34	54	45	39	34	43	38	34	42	37	34	41	37	33	32	32	32	32	32	32	32													
7	51	41	35	30	50	41	35	30	40	34	30	38	34	30	37	33	30	28	28	28	28	28	28	28													
8	48	38	31	27	46	37	31	27	36	31	27	35	30	27	34	30	27	25	25	25	25	25	25	25													
9	44	35	29	25	43	34	28	24	33	28	24	33	28	24	32	27	24	23	23	23	23	23	23	23													
10	42	32	26	22	41	32	26	22	31	26	22	30	25	22	29	25	22	21	21	21	21	21	21	21													

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7323	7323	7323
5°	7307	7334	7364
10°	7301	7363	7428
15°	7281	7407	7526
20°	7235	7456	7652
25°	7137	7505	7804
30°	6986	7535	7948
35°	6787	7515	8042
40°	6530	7378	8103
45°	6193	7088	7967
50°	5711	6545	7447
55°	5059	5697	6598
60°	4311	4732	5527
65°	3653	3657	4374
70°	3229	2802	3467
75°	2905	2357	2803
80°	2323	1953	2149
85°	1239	1108	1130



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	367.2	3.7	2.8	0°	3866	3866	3866	3866	3866	
10°-20°	1066.9	10.7	8.1	5°	3843	3848	3857	3863	3873	365
20°-30°	1651.0	16.5	12.5	15°	3713	3733	3777	3817	3838	1047
30°-40°	2015.2	20.1	15.3	25°	3415	3471	3591	3692	3734	1571
40°-50°	2024.3	20.2	15.3	35°	2935	3036	3250	3414	3478	1833
50°-60°	1549.5	15.5	11.7	45°	2312	2412	2646	2861	2974	1777
60°-70°	871.1	8.7	6.6	55°	1532	1562	1725	1872	1998	1370
70°-80°	385.9	3.9	2.9	65°	815	835	816	898	976	823
80°-90°	75.1	0.8	0.6	75°	397	366	322	360	383	418
90°-100°	0.0	0.0	0.0	85°	57	56	51	50	52	81
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°	3085.1	30.8	23.4	165°	0	0	0	0	0	0
0°-40°	5100.2	51.0	38.6	175°	0	0	0	0	0	0
0°-60°	8674.0	86.7	65.7	180°	0	0	0	0	0	0
0°-90°	10006.2	100.0	75.8							
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°	10006.2	100.0	75.8							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3866	3866	3866	3866	3866
2.5°	3855	3858	3864	3867	3875
5°	3843	3848	3857	3863	3873
7.5°	3823	3831	3844	3857	3869
10°	3796	3806	3828	3848	3862
12.5°	3759	3773	3806	3835	3853
15°	3713	3733	3777	3817	3838
17.5°	3657	3683	3742	3794	3819
20°	3589	3624	3699	3766	3796
22.5°	3509	3554	3649	3732	3768
25°	3415	3471	3591	3692	3734
27.5°	3309	3377	3523	3645	3690
30°	3194	3271	3445	3585	3634
32.5°	3068	3158	3355	3508	3562
35°	2935	3036	3250	3414	3478
37.5°	2792	2905	3126	3306	3385
40°	2641	2759	2984	3182	3277
42.5°	2482	2594	2827	3039	3145
45°	2312	2412	2646	2861	2974
47.5°	2131	2219	2445	2655	2766
50°	1938	2008	2221	2422	2527
52.5°	1737	1786	1973	2155	2269
55°	1532	1562	1725	1872	1998
57.5°	1330	1356	1486	1601	1719
60°	1138	1168	1249	1345	1459
62.5°	965	995	1021	1107	1207
65°	815	835	816	898	976
67.5°	689	694	644	724	786
70°	583	571	506	579	626
72.5°	488	465	402	462	494
75°	397	366	322	360	383
77.5°	304	276	250	269	285
80°	213	192	179	184	197
82.5°	127	118	110	109	116
85°	57	56	51	50	52
87.5°	14	15	14	13	13
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)