

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: 168P134

Luminaire Tested: **FMS24CR-432-120-80/86**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: 168P134
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FMS24CR-432-120-80/86
Description: FAIL-SAFE 2 X 4 Fail-Safe FMS Series with a .125 Prismatic Acrylic
and .250 Clear Polycarbonate Lens.
Light Source: Four - FO32/35K - 2800 Lumens ea. - 32 Watts ea.
Ballast/Driver: B432IUNVHP-A Electronic - L.O.B.F. = UNKNOWN

Summary

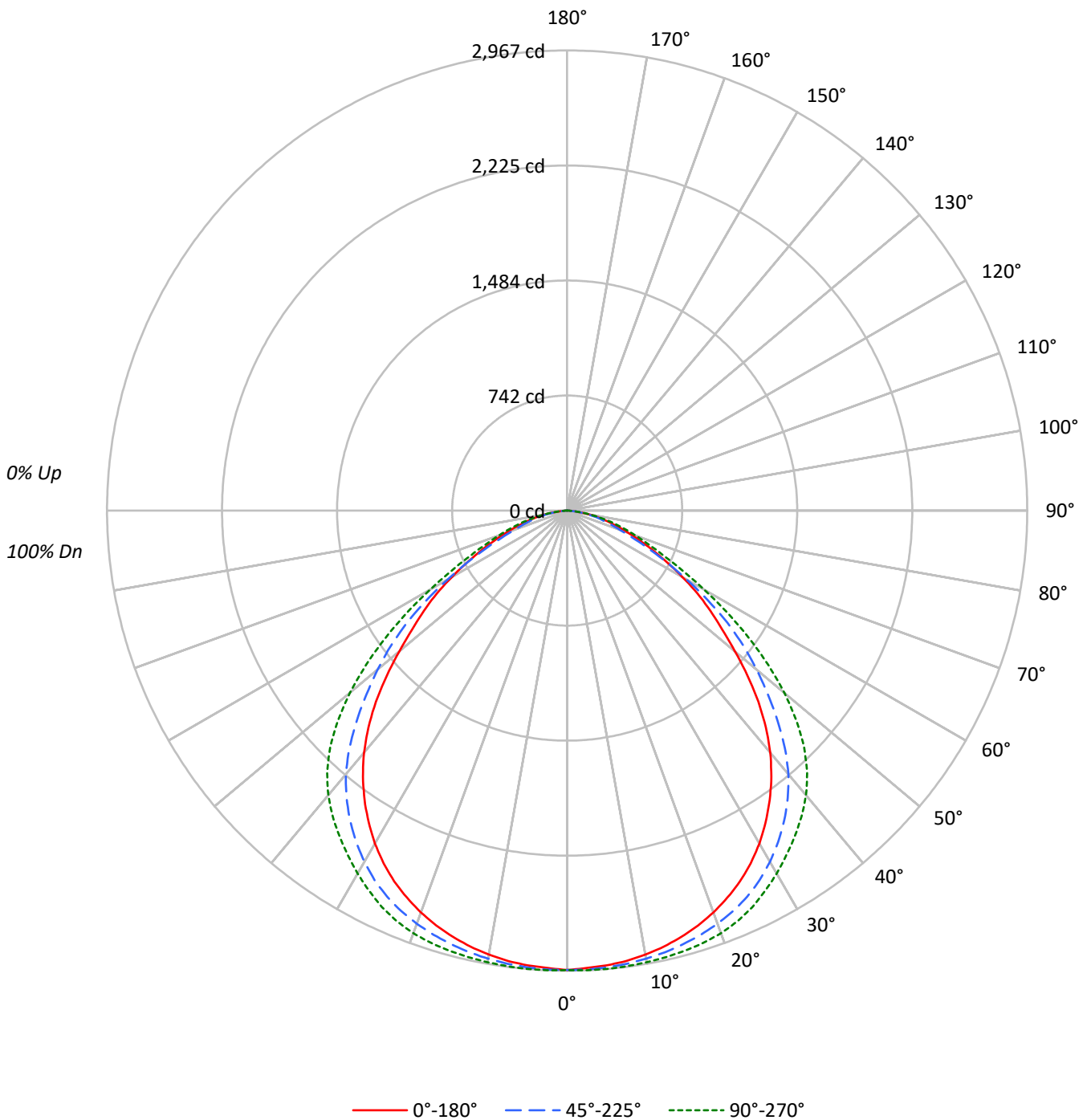
Lumens per Lamp: 2800 (4 lamps)
Luminaire Lumens: 7449.7 lumens
Efficiency: 66.5%
Efficacy: 66.5 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.34 / 1.37
Luminous Opening: Rectangular (W 1.54' x L: 3.69' x H: 0')
CIE Type: Direct

Input Watts (W): 112
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	79	79	79	79	77	77	77	77	74	74	74	71	71	71	68	68	68	67
1	73	70	68	66	72	69	67	65	66	64	63	64	62	61	61	60	59	58
2	67	62	58	55	66	61	57	54	59	56	53	57	54	52	55	53	51	49
3	62	55	50	46	60	54	50	46	52	48	45	51	47	44	49	46	44	42
4	57	49	44	40	55	49	44	40	47	43	39	45	42	39	44	41	38	37
5	52	44	39	35	51	44	38	34	42	38	34	41	37	34	40	36	33	32
6	49	40	35	30	47	40	34	30	38	34	30	37	33	30	36	33	30	28
7	45	37	31	27	44	36	31	27	35	30	27	34	30	27	33	29	26	25
8	42	33	28	24	41	33	28	24	32	27	24	31	27	24	30	27	24	23
9	39	31	25	22	38	30	25	22	30	25	22	29	25	22	28	24	21	20
10	37	28	23	20	36	28	23	20	27	23	20	27	23	20	26	22	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5611	5611	5611
5°	5596	5621	5640
10°	5591	5643	5688
15°	5581	5675	5761
20°	5557	5715	5846
25°	5513	5741	5900
30°	5422	5720	5910
35°	5268	5642	5922
40°	5039	5489	5925
45°	4672	5143	5789
50°	4158	4697	5387
55°	3722	4161	4719
60°	3258	3375	3868
65°	2747	2582	3070
70°	2326	1988	2575
75°	1983	1720	2218
80°	1571	1440	1691
85°	869	826	913



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	281.4	3.8	2.5	0°	2962	2962	2962	2962	2962	
10°-20°	817.5	11.0	7.3	5°	2943	2948	2956	2961	2966	280
20°-30°	1260.7	16.9	11.3	15°	2846	2861	2894	2924	2938	803
30°-40°	1516.8	20.4	13.5	25°	2638	2674	2747	2802	2823	1214
40°-50°	1481.7	19.9	13.2	35°	2278	2334	2440	2525	2561	1421
50°-60°	1130.5	15.2	10.1	45°	1744	1791	1920	2055	2161	1338
60°-70°	627.3	8.4	5.6	55°	1127	1159	1260	1385	1429	1009
70°-80°	279.0	3.7	2.5	65°	613	584	576	663	685	616
80°-90°	54.9	0.7	0.5	75°	271	249	235	271	303	290
90°-100°	0.0	0.0	0.0	85°	40	37	38	39	42	55
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°	2359.5	31.7	21.1	165°	0	0	0	0	0	0
0°-40°	3876.3	52.0	34.6	175°	0	0	0	0	0	0
0°-60°	6488.5	87.1	57.9	180°	0	0	0	0	0	0
0°-90°	7449.7	100.0	66.5							
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°	7449.7	100.0	66.5							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2962	2962	2962	2962	2962
2.5°	2952	2956	2962	2964	2967
5°	2943	2948	2956	2961	2966
7.5°	2929	2934	2947	2956	2963
10°	2907	2916	2934	2949	2957
12.5°	2880	2892	2917	2938	2949
15°	2846	2861	2894	2924	2938
17.5°	2806	2825	2867	2905	2922
20°	2757	2782	2835	2881	2900
22.5°	2701	2732	2795	2847	2867
25°	2638	2674	2747	2802	2823
27.5°	2564	2608	2687	2745	2765
30°	2479	2529	2615	2677	2702
32.5°	2382	2437	2532	2604	2633
35°	2278	2334	2440	2525	2561
37.5°	2163	2221	2337	2436	2484
40°	2038	2096	2220	2329	2396
42.5°	1897	1954	2079	2201	2291
45°	1744	1791	1920	2055	2161
47.5°	1579	1621	1755	1897	2006
50°	1411	1461	1594	1733	1828
52.5°	1260	1309	1433	1564	1634
55°	1127	1159	1260	1385	1429
57.5°	997	1004	1075	1196	1222
60°	860	850	891	1002	1021
62.5°	729	709	723	819	839
65°	613	584	576	663	685
67.5°	510	475	454	538	564
70°	420	387	359	435	465
72.5°	340	314	289	349	382
75°	271	249	235	271	303
77.5°	207	187	185	203	228
80°	144	132	132	139	155
82.5°	86	78	81	83	91
85°	40	37	38	39	42
87.5°	11	11	11	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)