

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: P31492

Luminaire Tested: **FMSC-D24-632-UNV-80/84-EB82**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P31492  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FMSC-D24-632-UNV-80/84-EB82  
Description: FAIL-SAFE FMSC CONFINEMENT FLUORESCENT FIXTURE WITH 80/84 LENS  
Light Source: (6) BIPIN T8 DOUBLE ENDED LINEAR FLUORESCENT LAMP 5000K F32T8-XL-SPX50-HL-ECO 32 W  
Ballast/Driver: (2) SYLVANIA ELECTRONIC BALLAST QTP3X32T8/UNV ISN-SC

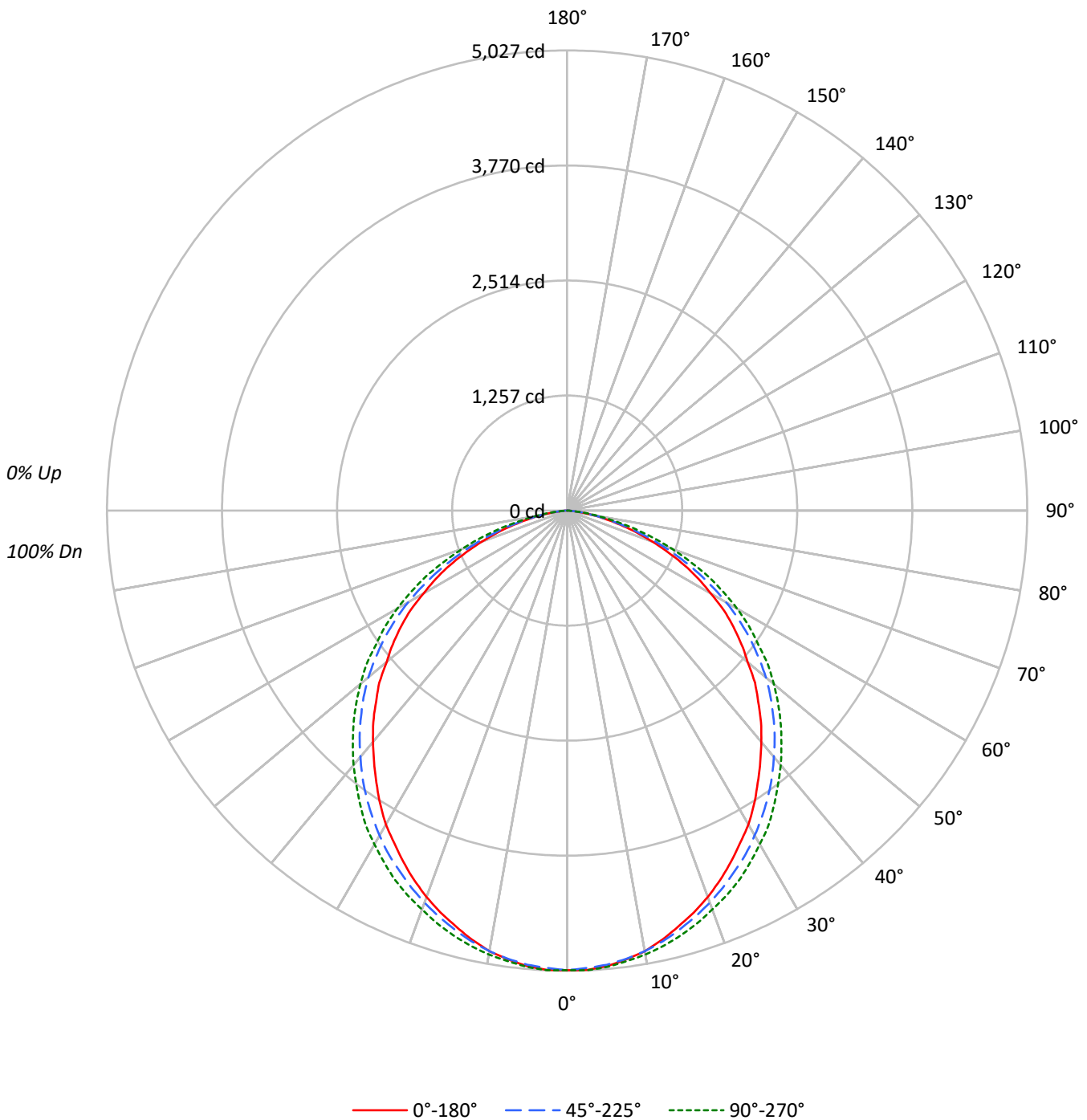
**Summary**

Lumens per Lamp: 3100 (6 lamps)  
Luminaire Lumens: 13144.5 lumens  
Efficiency: 70.7%  
Efficacy: 82.5 lumens/watt  
Spacing Criteria (0/90/45): 1.18 / 1.25 / 1.34  
Luminous Opening: Rectangular (W 1.54' x L: 3.69' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 159.3  
Input Voltage (V): 120.01  
Input Current (Ain): 1.3292  
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	84	84	84	84	82	82	82	82	79	79	79		75	75	75		72	72	72	71
1	77	74	71	69	75	73	70	68	70	67	66		67	65	64		64	63	62	60
2	71	65	60	56	69	64	59	56	61	58	54		59	56	53		57	54	52	51
3	64	57	52	47	63	56	51	47	54	50	46		52	48	45		50	47	44	43
4	59	51	45	40	57	50	44	40	48	43	39		46	42	39		45	41	38	37
5	54	45	39	35	53	45	39	34	43	38	34		42	37	34		40	36	33	32
6	50	41	35	30	49	40	34	30	39	34	30		38	33	30		37	33	29	28
7	47	37	31	27	45	37	31	27	35	30	26		34	30	26		34	29	26	25
8	43	34	28	24	42	33	28	24	32	27	24		32	27	24		31	27	23	22
9	41	31	25	22	40	31	25	21	30	25	21		29	25	21		28	24	21	20
10	38	29	23	20	37	28	23	19	28	23	19		27	23	19		26	22	19	18

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	9507	9507	9507
5°	9494	9465	9511
10°	9398	9396	9469
15°	9217	9291	9417
20°	9049	9182	9343
25°	8846	9067	9299
30°	8660	8960	9204
35°	8393	8837	9102
40°	8157	8686	8975
45°	7907	8531	8839
50°	7585	8345	8684
55°	7322	8045	8414
60°	6854	7608	8119
65°	6340	6922	7603
70°	5464	5984	6732
75°	4404	4719	5509
80°	3129	3206	3729
85°	1412	1564	1781



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	473.4	3.6	2.5	0°	5021	5021	5021	5021	5021	
10°-20°	1338.8	10.2	7.2	5°	4995	4990	4980	4997	5004	473
20°-30°	2000.9	15.2	10.8	15°	4702	4711	4740	4781	4804	1326
30°-40°	2377.6	18.1	12.8	25°	4234	4260	4340	4423	4451	1951
40°-50°	2433.3	18.5	13.1	35°	3631	3686	3823	3912	3938	2274
50°-60°	2151.8	16.4	11.6	45°	2953	3030	3186	3278	3301	2279
60°-70°	1535.2	11.7	8.3	55°	2218	2284	2437	2536	2549	1977
70°-80°	719.2	5.5	3.9	65°	1415	1462	1545	1671	1697	1391
80°-90°	114.4	0.9	0.6	75°	602	627	645	734	753	647
90°-100°	0.0	0.0	0.0	85°	65	70	72	81	82	104
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°	3813.1	29.0	20.5							
0°-40°	6190.7	47.1	33.3							
0°-60°	10775.8	82.0	57.9							
0°-90°	13144.5	100.0	70.7							
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°	13144.5	100.0	70.7							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5021	5021	5021	5021	5021
2.5°	5023	5018	5002	5016	5027
5°	4995	4990	4980	4997	5004
7.5°	4945	4947	4940	4960	4966
10°	4888	4883	4887	4909	4925
12.5°	4801	4802	4820	4849	4869
15°	4702	4711	4740	4781	4804
17.5°	4603	4617	4652	4702	4727
20°	4491	4508	4557	4616	4637
22.5°	4369	4388	4453	4526	4550
25°	4234	4260	4340	4423	4451
27.5°	4092	4134	4229	4312	4333
30°	3961	3991	4098	4190	4210
32.5°	3802	3838	3963	4050	4088
35°	3631	3686	3823	3912	3938
37.5°	3465	3531	3674	3759	3782
40°	3300	3367	3514	3599	3631
42.5°	3135	3207	3356	3438	3465
45°	2953	3030	3186	3278	3301
47.5°	2783	2850	3015	3108	3127
50°	2575	2674	2833	2929	2948
52.5°	2402	2481	2637	2730	2764
55°	2218	2284	2437	2536	2549
57.5°	2031	2081	2229	2337	2358
60°	1810	1874	2009	2113	2144
62.5°	1618	1669	1775	1898	1922
65°	1415	1462	1545	1671	1697
67.5°	1197	1245	1311	1423	1451
70°	987	1019	1081	1201	1216
72.5°	789	824	858	953	980
75°	602	627	645	734	753
77.5°	428	443	456	520	533
80°	287	283	294	349	342
82.5°	157	161	162	187	199
85°	65	70	72	81	82
87.5°	18	19	18	22	22
90°	0	0	0	0	0

(END OF REPORT)