

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: P31489

Luminaire Tested: **FMSC-D24-332-UNV-80/84-EB81**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P31489  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FMSC-D24-332-UNV-80/84-EB81  
Description: FAIL-SAFE FMSC CONFINEMENT SURFACE CLAMSHELL FLUORESCENT  
FIXTURE WITH 80/84 LENS  
Light Source: (3) BIPIN T8 DOUBLE ENDED LINEAR FLUORESCENT LAMP 5000K  
F32T8-XL-SPX50-HL-ECO 32 W  
Ballast/Driver: (1) SYLVANIA ELECTRONIC BALLAST  
QTP3X32T8/UNV ISN-SC

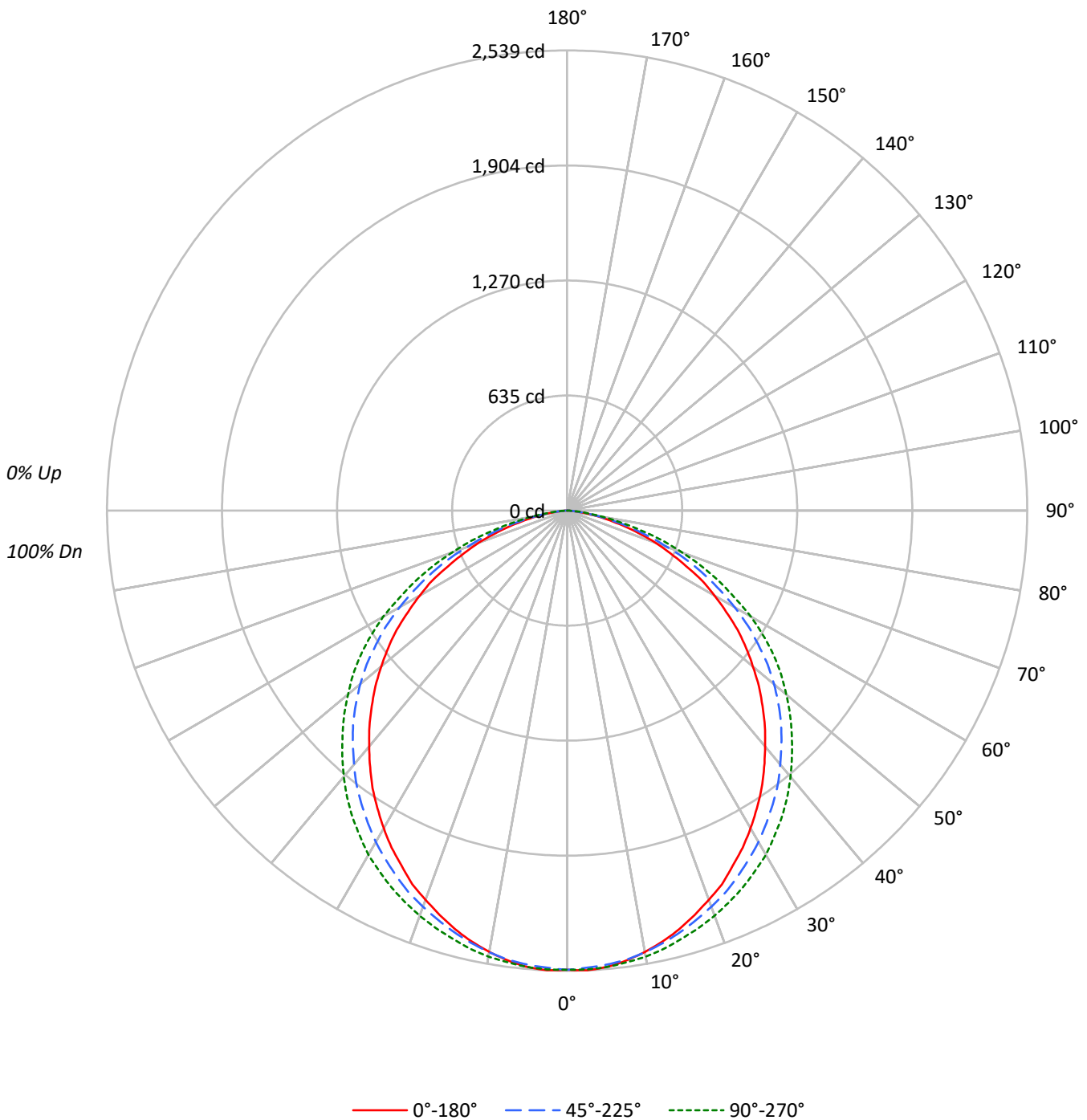
**Summary**

Lumens per Lamp: 3100 (3 lamps)  
Luminaire Lumens: 6876.9 lumens  
Efficiency: 73.9%  
Efficacy: 83.4 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.28 / 1.37  
Luminous Opening: Rectangular (W 1.54' x L: 3.69' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 82.5  
Input Voltage (V): 120.03  
Input Current (Ain): 0.688  
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	88	88	88	88	86	86	86	86	82	82	82		79	79	79		75	75	75	74
1	81	77	74	72	79	76	73	71	73	70	68		70	68	66		67	66	64	63
2	74	68	63	59	72	66	62	58	64	60	57		61	58	55		59	56	54	53
3	67	60	54	49	65	58	53	49	56	52	48		54	50	47		52	49	46	44
4	62	53	46	42	60	52	46	41	50	45	41		48	44	40		47	43	40	38
5	57	47	41	36	55	46	40	36	45	39	35		43	39	35		42	38	34	33
6	52	43	36	31	51	42	36	31	40	35	31		39	34	31		38	34	30	29
7	48	39	32	28	47	38	32	27	37	31	27		36	31	27		35	30	27	25
8	45	35	29	25	44	35	29	25	34	28	24		33	28	24		32	27	24	23
9	42	32	26	22	41	32	26	22	31	26	22		30	25	22		29	25	22	20
10	40	30	24	20	39	29	24	20	29	24	20		28	23	20		27	23	20	18

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

	0°	45°	90°
0°	4798	4798	4798
5°	4805	4780	4805
10°	4755	4757	4805
15°	4687	4722	4793
20°	4604	4687	4794
25°	4517	4653	4793
30°	4425	4618	4795
35°	4325	4572	4773
40°	4199	4521	4738
45°	4081	4472	4694
50°	3941	4389	4648
55°	3790	4245	4592
60°	3556	4044	4438
65°	3239	3737	4158
70°	2873	3255	3737
75°	2304	2641	3073
80°	1636	1777	2159
85°	804	912	1173



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	239.4	3.5	2.6	0°	2534	2534	2534	2534	2534	
10°-20°	681.0	9.9	7.3	5°	2528	2521	2515	2522	2528	239
20°-30°	1026.6	14.9	11.0	15°	2391	2392	2409	2436	2445	674
30°-40°	1232.4	17.9	13.3	25°	2162	2177	2227	2278	2294	997
40°-50°	1275.0	18.5	13.7	35°	1871	1898	1978	2036	2065	1169
50°-60°	1140.5	16.6	12.3	45°	1524	1572	1670	1736	1753	1176
60°-70°	824.1	12.0	8.9	55°	1148	1197	1286	1360	1391	1022
70°-80°	393.4	5.7	4.2	65°	723	767	834	909	928	720
80°-90°	64.6	0.9	0.7	75°	315	332	361	409	420	339
90°-100°	0.0	0.0	0.0	85°	37	37	42	49	54	54
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°	1947.0	28.3	20.9							
0°-40°	3179.4	46.2	34.2							
0°-60°	5594.9	81.4	60.2							
0°-90°	6876.9	100.0	73.9							
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°	6876.9	100.0	73.9							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2534	2534	2534	2534	2534
2.5°	2539	2533	2525	2531	2534
5°	2528	2521	2515	2522	2528
7.5°	2504	2501	2500	2510	2514
10°	2473	2472	2474	2490	2499
12.5°	2435	2436	2444	2465	2476
15°	2391	2392	2409	2436	2445
17.5°	2339	2345	2368	2401	2414
20°	2285	2296	2326	2363	2379
22.5°	2232	2240	2282	2323	2338
25°	2162	2177	2227	2278	2294
27.5°	2097	2114	2170	2222	2244
30°	2024	2044	2112	2167	2193
32.5°	1948	1971	2045	2106	2129
35°	1871	1898	1978	2036	2065
37.5°	1786	1821	1909	1968	1995
40°	1699	1740	1829	1890	1917
42.5°	1615	1658	1750	1815	1836
45°	1524	1572	1670	1736	1753
47.5°	1435	1486	1582	1647	1669
50°	1338	1388	1490	1563	1578
52.5°	1245	1297	1394	1457	1490
55°	1148	1197	1286	1360	1391
57.5°	1040	1094	1183	1255	1284
60°	939	989	1068	1149	1172
62.5°	843	880	950	1030	1042
65°	723	767	834	909	928
67.5°	616	657	718	783	803
70°	519	549	588	657	675
72.5°	414	435	468	531	554
75°	315	332	361	409	420
77.5°	224	234	257	293	306
80°	150	152	163	196	198
82.5°	80	88	93	109	117
85°	37	37	42	49	54
87.5°	8	11	12	12	14
90°	0	0	0	0	0

(END OF REPORT)