

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: P31463

Luminaire Tested: **FMSC-D12-232-UNV-80/84-EB81**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P31463  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FMSC-D12-232-UNV-80/84-EB81  
Description: FAIL-SAFE FMSC CONFINEMENT SURFACE CLAMSHELL FLUORESCENT  
FIXTURE WITH 80/84 LENS  
Light Source: (2) BIPIN T8 DOUBLE ENDED LINEAR FLUORESCENT LAMP 3500K  
GE F32T8/SPX35/ECO 32 W  
Ballast/Driver: (1) SYLVANIA ELECTRONIC BALLAST  
SYL QTP2X32T8/UNV ISN-SC

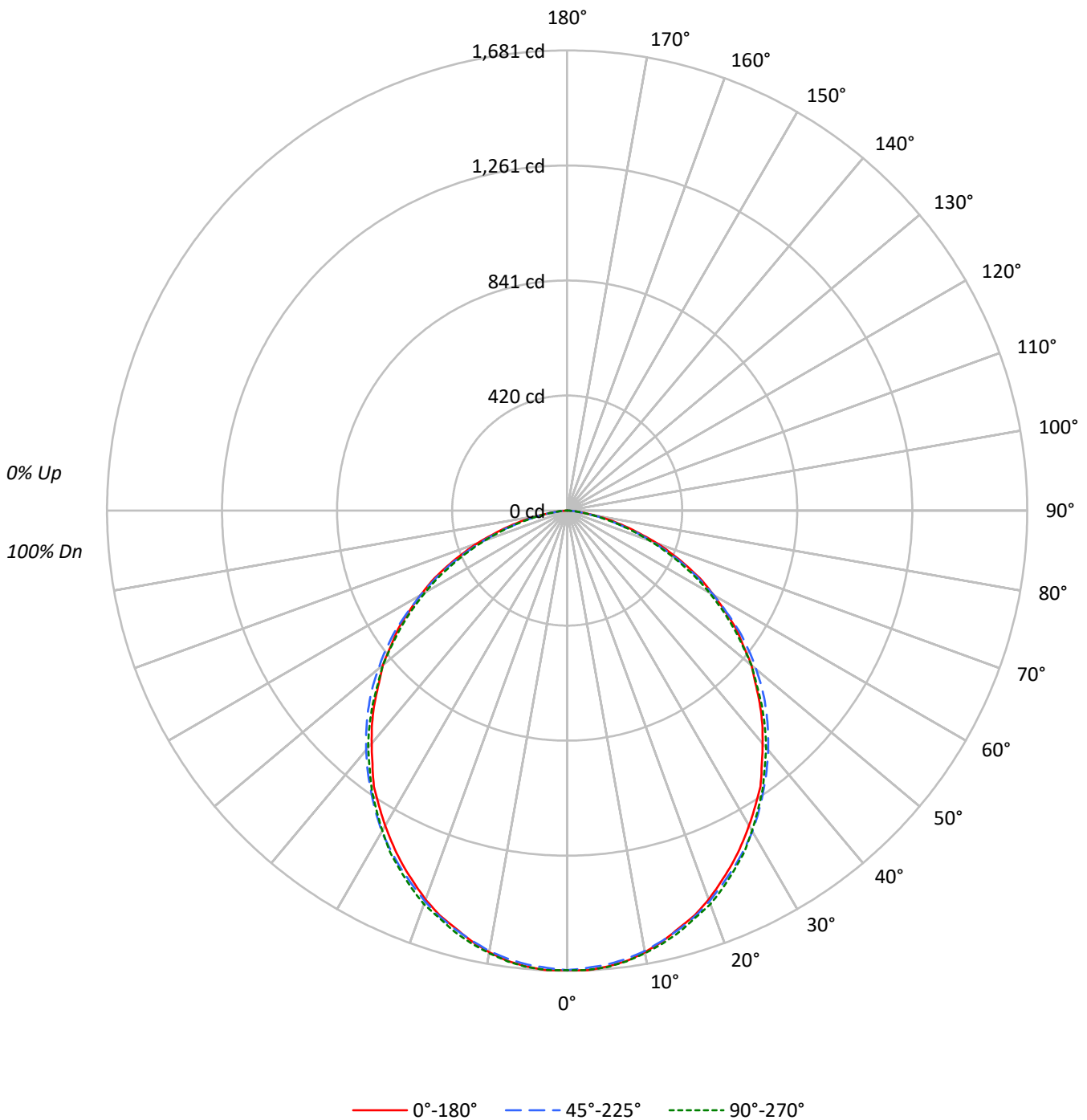
**Summary**

Lumens per Lamp: 3100 (2 lamps)  
Luminaire Lumens: 4232.1 lumens  
Efficiency: 68.3%  
Efficacy: 77.7 lumens/watt  
Spacing Criteria (0/90/45): 1.18 / 1.2 / 1.32  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 54.5  
Input Voltage (V): 120.06  
Input Current (A<sub>in</sub>): 0.45397  
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	81	81	81	81	79	79	79	79	76	76	76		73	73	73		70	70	70	68
1	75	72	69	67	73	70	68	66	67	65	63		65	63	62		62	61	60	58
2	68	63	59	55	67	62	58	54	59	56	53		57	54	52		55	53	51	49
3	62	56	50	46	61	55	50	46	53	48	45		51	47	44		49	46	43	42
4	57	49	44	39	56	49	43	39	47	42	38		45	41	38		44	40	37	36
5	53	44	38	34	51	44	38	34	42	37	33		41	36	33		40	36	33	31
6	49	40	34	30	48	39	34	30	38	33	29		37	32	29		36	32	29	27
7	45	36	30	26	44	36	30	26	35	30	26		34	29	26		33	29	26	24
8	42	33	27	24	41	33	27	23	32	27	23		31	26	23		30	26	23	22
9	39	30	25	21	39	30	25	21	29	24	21		29	24	21		28	24	21	20
10	37	28	23	19	36	28	23	19	27	22	19		26	22	19		26	22	19	18

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

	0°	45°	90°
0°	9036	9036	9036
5°	9033	8995	9044
10°	8952	8930	8974
15°	8798	8820	8870
20°	8660	8700	8763
25°	8462	8551	8593
30°	8259	8414	8390
35°	8088	8213	8173
40°	7805	8023	7946
45°	7573	7824	7649
50°	7360	7544	7360
55°	7066	7197	6934
60°	6652	6652	6448
65°	6176	6036	5833
70°	5508	5177	5051
75°	4492	4076	4034
80°	3099	2789	2758
85°	1544	1544	1606



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	158.5	3.7	2.6	0°	1679	1679	1679	1679	1679	
10°-20°	447.3	10.6	7.2	5°	1672	1673	1665	1673	1674	159
20°-30°	663.3	15.7	10.7	15°	1579	1586	1583	1592	1592	446
30°-40°	777.7	18.4	12.5	25°	1425	1436	1440	1451	1447	656
40°-50°	782.6	18.5	12.6	35°	1231	1237	1250	1249	1244	767
50°-60°	676.6	16.0	10.9	45°	995	1016	1028	1017	1005	767
60°-70°	471.7	11.1	7.6	55°	753	766	767	757	739	670
70°-80°	217.8	5.1	3.5	65°	485	486	474	469	458	480
80°-90°	36.6	0.9	0.6	75°	216	208	196	197	194	230
90°-100°	0.0	0.0	0.0	85°	25	26	25	25	26	38
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°	1269.2	30.0	20.5							
0°-40°	2046.8	48.4	33.0							
0°-60°	3506.0	82.8	56.5							
0°-90°	4232.1	100.0	68.3							
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°	4232.1	100.0	68.3							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1679	1679	1679	1679	1679
2.5°	1681	1681	1672	1681	1680
5°	1672	1673	1665	1673	1674
7.5°	1660	1659	1652	1661	1661
10°	1638	1639	1634	1643	1642
12.5°	1611	1613	1609	1621	1619
15°	1579	1586	1583	1592	1592
17.5°	1550	1552	1554	1561	1559
20°	1512	1516	1519	1527	1530
22.5°	1468	1478	1479	1490	1490
25°	1425	1436	1440	1451	1447
27.5°	1378	1391	1398	1404	1404
30°	1329	1343	1354	1355	1350
32.5°	1279	1292	1303	1305	1297
35°	1231	1237	1250	1249	1244
37.5°	1168	1186	1197	1192	1185
40°	1111	1129	1142	1139	1131
42.5°	1055	1074	1086	1079	1069
45°	995	1016	1028	1017	1005
47.5°	932	955	967	954	938
50°	879	897	901	890	879
52.5°	811	831	835	824	806
55°	753	766	767	757	739
57.5°	684	700	690	688	669
60°	618	630	618	614	599
62.5°	557	561	547	543	532
65°	485	486	474	469	458
67.5°	416	422	402	403	389
70°	350	348	329	329	321
72.5°	276	278	262	261	253
75°	216	208	196	197	194
77.5°	157	150	140	142	138
80°	100	98	90	91	89
82.5°	58	57	51	52	51
85°	25	26	25	25	26
87.5°	6	8	10	10	10
90°	0	0	0	0	0

(END OF REPORT)