

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: P31482

Luminaire Tested: **FMSC-D12-232-UNV-80/86-EB81**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P31482  
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-80/86-EB81  
Description: FAIL-SAFE FMSC CONFINEMENT SURFACE CLAMSHELL FLUORESCENT  
FIXTURE WITH 80/86 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

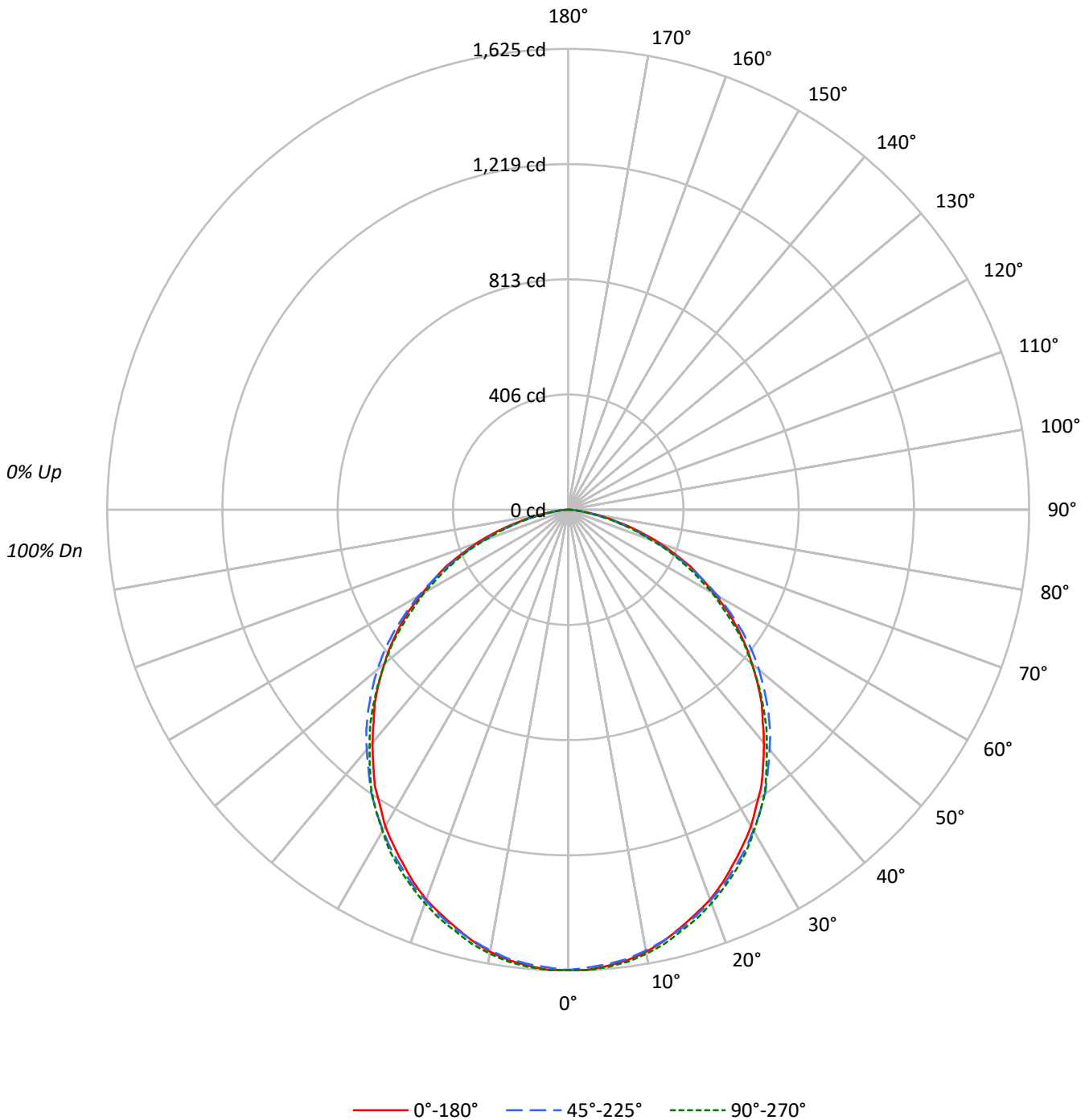
**Summary**

Lumens per Lamp: 3100 (2 lamps)  
Luminaire Lumens: 4101.6 lumens  
Efficiency: 66.2%  
Efficacy: 76.2 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.32  
Luminous Opening: Rectangular (W 0.92' x L: 3.83' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 53.8  
Input Voltage (V): 120.05  
Input Current (A<sub>in</sub>): 0.4567  
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		70	70	70		68	68	68	66
1	72	70	67	65	71	68	66	63	65	63	61		63	61	60		60	59	58	57
2	66	61	57	53	64	60	56	53	57	54	51		55	53	50		53	51	49	48
3	61	54	49	45	59	53	48	44	51	47	43		49	46	43		47	44	42	40
4	56	48	42	38	54	47	42	38	45	41	37		44	40	37		42	39	36	35
5	51	43	37	33	50	42	37	33	41	36	32		39	35	32		38	35	32	30
6	47	39	33	29	46	38	33	29	37	32	28		36	31	28		35	31	28	27
7	44	35	29	25	43	35	29	25	34	29	25		33	28	25		32	28	25	24
8	41	32	27	23	40	32	26	23	31	26	23		30	26	22		29	25	22	21
9	38	30	24	21	37	29	24	21	28	24	20		28	23	20		27	23	20	19
10	36	27	22	19	35	27	22	19	26	22	19		26	21	18		25	21	18	17

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

	0°	45°	90°
0°	4972	4972	4972
5°	4963	4945	4975
10°	4924	4908	4946
15°	4839	4855	4877
20°	4769	4782	4815
25°	4658	4701	4735
30°	4559	4619	4630
35°	4443	4532	4525
40°	4291	4419	4355
45°	4176	4315	4202
50°	4032	4184	4022
55°	3888	4000	3824
60°	3658	3737	3584
65°	3457	3356	3262
70°	3063	2857	2776
75°	2497	2237	2249
80°	1764	1535	1552
85°	879	844	879



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	153.2	3.7	2.5	0°	1623	1623	1623	1623	1623	
10°-20°	432.4	10.5	7.0	5°	1614	1615	1608	1618	1618	153
20°-30°	641.5	15.6	10.3	15°	1526	1531	1531	1540	1538	431
30°-40°	752.5	18.3	12.1	25°	1378	1384	1391	1401	1401	635
40°-50°	757.1	18.5	12.2	35°	1188	1197	1212	1213	1210	741
50°-60°	657.3	16.0	10.6	45°	964	982	996	986	970	742
60°-70°	459.3	11.2	7.4	55°	728	742	749	732	716	649
70°-80°	212.3	5.2	3.4	65°	477	478	463	458	450	466
80°-90°	36.0	0.9	0.6	75°	211	205	189	191	190	225
90°-100°	0.0	0.0	0.0	85°	25	25	24	25	25	37
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°	1227.1	29.9	19.8							
0°-40°	1979.6	48.3	31.9							
0°-60°	3394.0	82.7	54.7							
0°-90°	4101.6	100.0	66.2							
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°	4101.6	100.0	66.2							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1623	1623	1623	1623	1623
2.5°	1624	1624	1616	1624	1625
5°	1614	1615	1608	1618	1618
7.5°	1602	1604	1598	1605	1608
10°	1583	1585	1578	1586	1590
12.5°	1558	1559	1556	1566	1568
15°	1526	1531	1531	1540	1538
17.5°	1495	1500	1501	1510	1511
20°	1463	1466	1467	1477	1477
22.5°	1423	1429	1432	1442	1440
25°	1378	1384	1391	1401	1401
27.5°	1334	1347	1351	1360	1359
30°	1289	1298	1306	1314	1309
32.5°	1235	1249	1260	1262	1260
35°	1188	1197	1212	1213	1210
37.5°	1129	1143	1156	1156	1148
40°	1073	1091	1105	1103	1089
42.5°	1015	1036	1053	1043	1033
45°	964	982	996	986	970
47.5°	905	923	937	924	909
50°	846	865	878	860	844
52.5°	789	805	816	798	784
55°	728	742	749	732	716
57.5°	666	681	678	668	647
60°	597	612	610	596	585
62.5°	533	545	535	526	515
65°	477	478	463	458	450
67.5°	404	408	391	391	385
70°	342	336	319	320	310
72.5°	274	269	254	257	251
75°	211	205	189	191	190
77.5°	148	150	136	137	135
80°	100	95	87	88	88
82.5°	56	55	52	52	50
85°	25	25	24	25	25
87.5°	6	8	9	11	11
90°	0	0	0	0	0

(END OF REPORT)