

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: 4871

Luminaire Tested: **FSW-2PL-13**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: 4871  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FSW-2PL-13  
Description: FAIL-SAFE 2/13W PL 45DEG UNIT  
Light Source: PL13  
Ballast/Driver: -

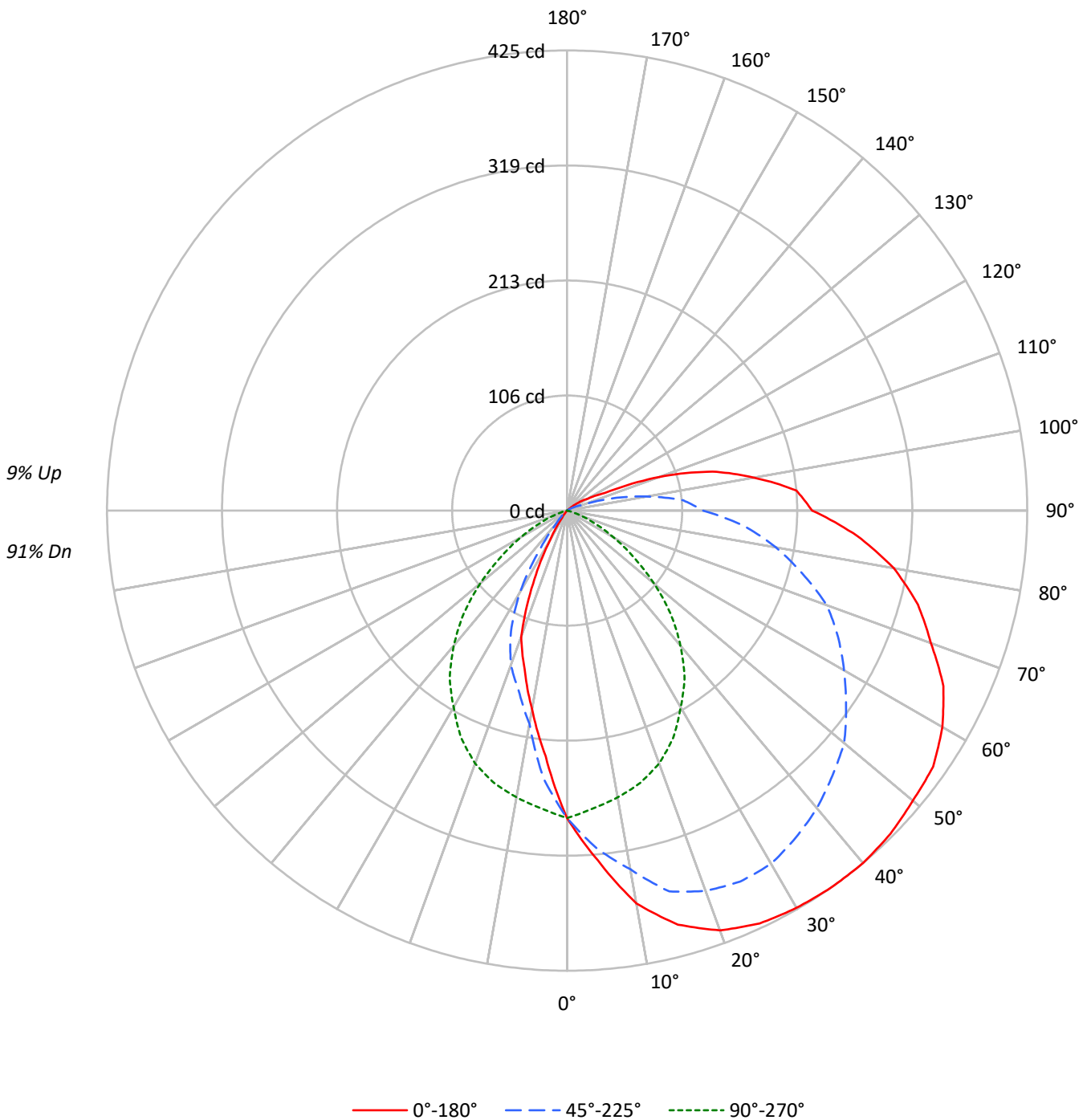
**Summary**

Lumens per Lamp: 900 (2 lamps)  
Luminaire Lumens: 1014.9 lumens  
Efficiency: 56.4%  
Efficacy: 29.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.12 / 1.35  
Luminous Opening: Rectangular w/ Sides (W: 0.76' x L: 0.19' x H: 0.19')  
CIE Type: Direct

Input Watts (W): 34  
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	50	30	10	0	
RCR																						
0	66	66	66	66	64	64	64	64	60	60	60	56	56	56	53	53	53	51				51
1	58	55	52	49	56	53	50	48	50	48	45	47	45	43	44	42	41	39				39
2	53	47	43	39	51	46	42	38	43	39	36	40	37	35	38	35	33	32				32
3	48	41	36	32	46	40	35	31	37	33	30	35	32	29	33	30	28	26				26
4	43	36	31	27	42	35	30	26	33	29	25	31	27	24	29	26	23	22				22
5	40	32	27	23	38	31	26	22	29	25	22	28	24	21	26	23	20	19				19
6	37	29	24	20	35	28	23	19	26	22	19	25	21	18	24	20	18	16				16
7	34	26	21	17	33	25	21	17	24	20	17	23	19	16	22	18	16	14				14
8	32	24	19	15	30	23	18	15	22	18	15	21	17	14	20	17	14	13				13
9	30	22	17	14	29	21	17	14	20	16	13	19	16	13	18	15	13	12				12
10	28	20	16	13	27	20	15	12	19	15	12	18	14	12	17	14	11	10				10

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

	0°	90°	180°
0°	21170	21170	21170
5°	22300	20218	15674
10°	23712	19502	11981
15°	24096	18841	9233
20°	23996	18061	7212
25°	23598	17067	4184
30°	23115	15773	1724
35°	22747	14637	439
40°	22487	13095	148
45°	22254	11419	0
50°	22053	9364	0
55°	22083	7144	0
60°	21833	5171	0
65°	21506	3181	0
70°	20792	1602	0
75°	20414	417	0
80°	19709	0	0
85°	18509	0	0



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	45°	90°	135°	180°	Flux
0°-10°	26.4	2.6	1.5	0°	284	284	284	284	284	
10°-20°	75.5	7.4	4.2	5°	324	313	276	248	228	32
20°-30°	112.6	11.1	6.3	15°	396	364	260	172	152	112
30°-40°	130.0	12.8	7.2	25°	421	378	232	123	75	194
40°-50°	138.1	13.6	7.7	35°	425	368	189	44	8	267
50°-60°	135.0	13.3	7.5	45°	422	346	135	7	0	326
60°-70°	124.0	12.2	6.9	55°	413	314	75	0	0	368
70°-80°	104.1	10.3	5.8	65°	383	276	28	0	0	378
80°-90°	77.8	7.7	4.3	75°	335	225	3	0	0	353
90°-100°	53.3	5.3	3.0	85°	269	164	0	0	0	227
100°-110°	28.7	2.8	1.6	90°	226	126	0	0	0	128
110°-120°	7.5	0.7	0.4	95°	212	108	0	0	0	161
120°-130°	1.7	0.2	0.1	105°	139	44	0	0	0	144
130°-140°	0.1	0.0	0.0	115°	39	8	0	0	0	48
140°-150°	0.0	0.0	0.0	125°	14	0	0	0	0	12
150°-160°	0.0	0.0	0.0	135°	0	0	0	0	0	1
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°	214.6	21.1	11.9	165°	0	0	0	0	0	0
0°-40°	344.6	34.0	19.1	175°	0	0	0	0	0	0
0°-60°	617.7	60.9	34.3	180°	0	0	0	0	0	0
0°-90°	923.6	91.0	51.3							
90°-120°	89.5	8.8	5.0							
90°-150°	91.3	9.0	5.1							
90°-180°	91.0	9.0	5.1							
0°-180°	1014.9	100.0	56.4							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	284.0	284.0	284.0	284.0	284.0	284.0	284.0	284.0	284.0
5°	324.1	320.2	313.1	298.1	276.1	263.6	248.4	233.1	227.8
10°	368.5	357.5	336.5	312.0	269.0	237.1	200.1	187.6	186.2
15°	395.9	384.9	364.2	317.3	260.5	211.1	172.4	161.3	151.7
20°	412.6	398.7	373.8	323.0	248.4	180.8	151.7	128.3	124.0
25°	420.7	408.3	378.1	323.0	231.7	164.2	122.9	95.2	74.6
30°	423.6	408.3	376.7	310.5	209.7	139.0	87.0	38.7	31.6
35°	425.0	406.9	368.5	298.1	189.0	117.3	44.1	12.4	8.2
40°	425.0	404.4	358.9	284.3	162.8	91.0	15.3	5.7	2.8
45°	422.2	400.1	346.4	262.2	135.4	67.5	6.8	1.4	0.0
50°	416.8	390.5	334.0	238.8	104.8	41.3	1.4	0.0	0.0
55°	412.6	383.4	314.5	206.8	74.6	16.4	0.0	0.0	0.0
60°	400.1	368.5	295.3	180.8	49.7	4.2	0.0	0.0	0.0
65°	383.4	354.6	276.1	153.2	27.7	1.4	0.0	0.0	0.0
70°	357.5	326.9	255.2	120.1	12.4	0.0	0.0	0.0	0.0
75°	335.4	303.5	224.9	89.6	2.8	0.0	0.0	0.0	0.0
80°	306.3	270.4	195.8	62.2	0.0	0.0	0.0	0.0	0.0
85°	269.0	240.2	164.2	37.3	0.0	0.0	0.0	0.0	0.0
90°	226.3	193.3	125.5	16.4	0.0	0.0	0.0	0.0	0.0
95°	212.5	180.8	107.7	8.2	0.0	0.0	0.0	0.0	0.0
100°	175.2	142.1	74.6	4.2	0.0	0.0	0.0	0.0	0.0
105°	139.0	109.1	44.1	1.4	0.0	0.0	0.0	0.0	0.0
110°	91.0	49.7	15.3	0.0	0.0	0.0	0.0	0.0	0.0
115°	38.7	22.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0
120°	22.0	15.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0
125°	13.8	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	4.2	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)