

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: P30103

Luminaire Tested: **CRF-24-432-UNV-IK12**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P30103  
Test Lab: METALUX RESEARCH LABS  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: CRF-24-432-UNV-IK12  
Description: FAILSAFE TRISEAL CRF SERIES 2x4 4L T8  
Light Source: (4) DOUBLE ENDED T8 4 FOOT LINEAR FLUORESCENT LAMPS  
F32W T8 32 WATTS  
Ballast/Driver: (2) GE ELECTRONIC BALLAST  
GE-232-MVN

**Summary**

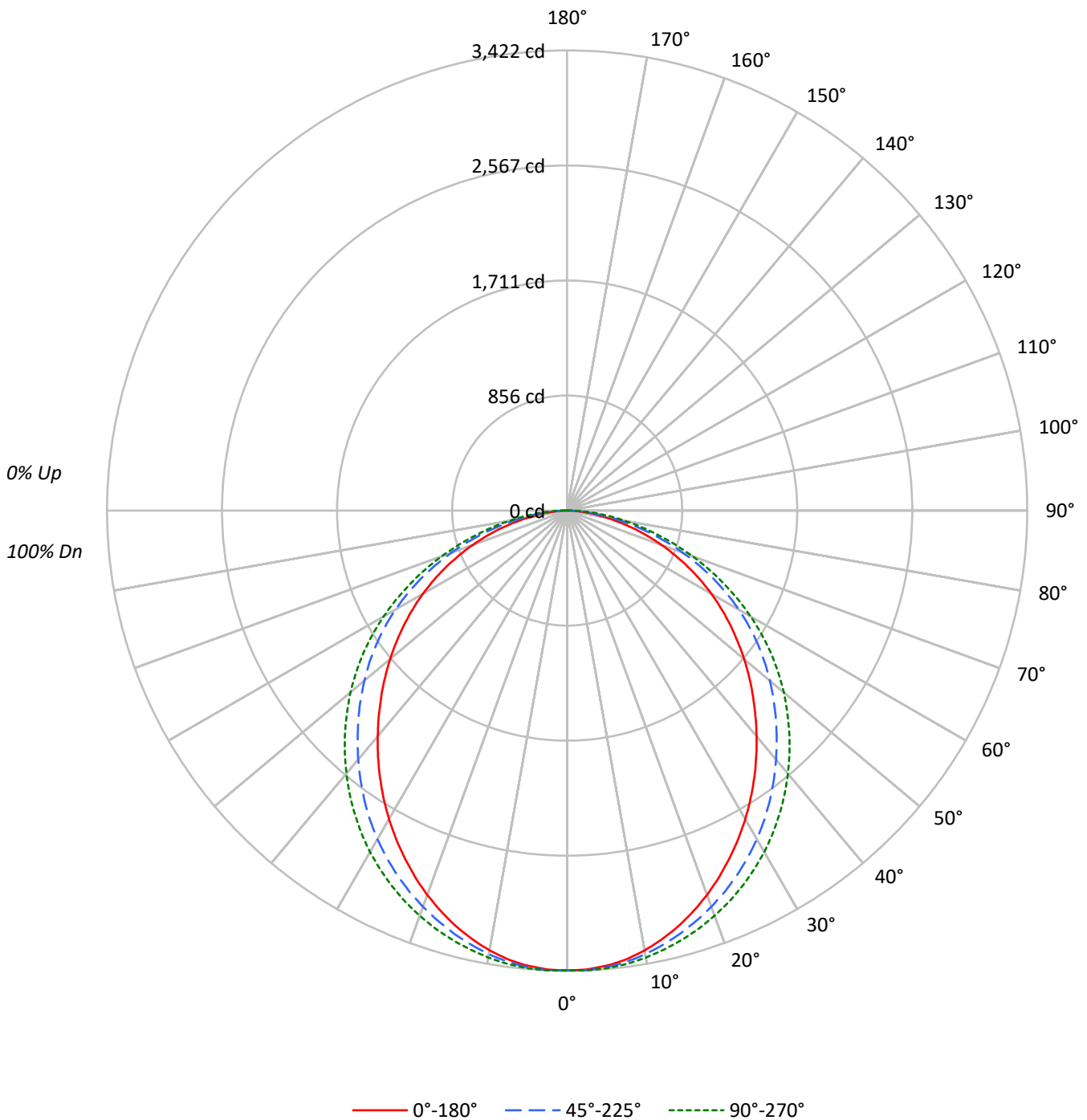
Lumens per Lamp: 3100 (4 lamps)  
Luminaire Lumens: 9446.3 lumens  
Efficiency: 76.2%  
Efficacy: 82.3 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.27 / 1.35  
Luminous Opening: Rectangular (W 1.75' x L: 3.75' x H: 0')  
CIE Type: Direct

Input Watts (W): 114.8  
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	0
RCR																		
0	91	91	91	91	89	89	89	89	85	85	85	81	81	81	78	78	78	76
1	83	79	76	73	81	77	74	72	74	72	69	71	69	67	68	67	65	64
2	75	69	64	59	73	67	63	59	65	61	57	62	59	56	60	57	55	53
3	69	61	54	49	67	59	53	49	57	52	48	55	51	47	53	49	46	45
4	63	54	47	42	61	53	46	41	51	45	41	49	44	40	47	43	40	38
5	58	48	41	36	56	47	41	36	45	40	35	44	39	35	42	38	35	33
6	53	43	36	31	52	42	36	31	41	35	31	40	35	31	39	34	30	29
7	49	39	32	28	48	38	32	28	37	32	27	36	31	27	35	31	27	25
8	46	36	29	25	45	35	29	25	34	29	24	33	28	24	32	28	24	23
9	43	33	26	22	42	32	26	22	31	26	22	31	26	22	30	25	22	20
10	40	30	24	20	39	30	24	20	29	24	20	28	23	20	28	23	20	19

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

	0°	45°	90°
0°	5610	5610	5610
5°	5593	5611	5624
10°	5531	5579	5621
15°	5432	5529	5610
20°	5308	5472	5596
25°	5167	5411	5578
30°	5017	5345	5553
35°	4858	5264	5514
40°	4691	5175	5468
45°	4535	5094	5419
50°	4384	5024	5366
55°	4229	4950	5290
60°	4064	4839	5170
65°	3854	4657	4995
70°	3582	4388	4753
75°	3226	3999	4436
80°	2730	3467	4081
85°	2089	2936	3858



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	323.3	3.4	2.6	0°	3420	3420	3420	3420	3420	
10°-20°	917.4	9.7	7.4	5°	3397	3402	3408	3411	3416	322
20°-30°	1372.4	14.5	11.1	15°	3199	3216	3256	3288	3304	901
30°-40°	1631.4	17.3	13.2	25°	2855	2899	2990	3058	3082	1314
40°-50°	1675.0	17.7	13.5	35°	2426	2488	2629	2726	2754	1517
50°-60°	1518.0	16.1	12.2	45°	1955	2032	2196	2309	2336	1509
60°-70°	1159.9	12.3	9.4	55°	1479	1565	1731	1838	1850	1322
70°-80°	657.8	7.0	5.3	65°	993	1069	1200	1285	1287	982
80°-90°	187.6	2.0	1.5	75°	509	554	631	691	700	539
90°-100°	3.6	0.0	0.0	85°	111	128	156	192	205	129
100°-110°	0.0	0.0	0.0	90°	10	14	23	39	47	9
110°-120°	0.0	0.0	0.0	95°	0	0	0	0	0	0
120°-130°	0.0	0.0	0.0	105°	0	0	0	0	0	0
130°-140°	0.0	0.0	0.0	115°	0	0	0	0	0	0
140°-150°	0.0	0.0	0.0	125°	0	0	0	0	0	0
150°-160°	0.0	0.0	0.0	135°	0	0	0	0	0	0
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°	2613.1	27.7	21.1	165°	0	0	0	0	0	0
0°-40°	4244.5	44.9	34.2	175°	0	0	0	0	0	0
0°-60°	7437.5	78.7	60.0	180°	0	0	0	0	0	0
0°-90°	9442.7	100.0	76.2							
90°-120°	3.6	0.0	0.0							
90°-150°	3.6	0.0	0.0							
90°-180°	4.0	0.0	0.0							
0°-180°	9446.3	100.0	76.2							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3420	3420	3420	3420	3420
2.5°	3415	3418	3421	3420	3422
5°	3397	3402	3408	3411	3416
7.5°	3366	3373	3384	3393	3400
10°	3321	3331	3350	3366	3375
12.5°	3265	3278	3306	3330	3342
15°	3199	3216	3256	3288	3304
17.5°	3124	3147	3198	3239	3259
20°	3041	3070	3135	3185	3206
22.5°	2951	2988	3066	3125	3148
25°	2855	2899	2990	3058	3082
27.5°	2754	2803	2909	2985	3010
30°	2649	2703	2822	2907	2932
32.5°	2539	2597	2728	2819	2846
35°	2426	2488	2629	2726	2754
37.5°	2310	2375	2524	2628	2657
40°	2191	2262	2417	2525	2554
42.5°	2073	2146	2306	2417	2447
45°	1955	2032	2196	2309	2336
47.5°	1837	1916	2083	2196	2220
50°	1718	1800	1969	2082	2103
52.5°	1598	1683	1852	1962	1979
55°	1479	1565	1731	1838	1850
57.5°	1359	1445	1606	1707	1716
60°	1239	1322	1475	1571	1576
62.5°	1116	1196	1340	1430	1433
65°	993	1069	1200	1285	1287
67.5°	869	938	1059	1138	1139
70°	747	810	915	988	991
72.5°	625	680	771	838	842
75°	509	554	631	691	700
77.5°	394	432	494	550	562
80°	289	318	367	417	432
82.5°	194	216	253	298	313
85°	111	128	156	192	205
87.5°	47	59	77	103	114
90°	10	14	23	39	47
92.5°	0	0	0	0	0
95°	0	0	0	0	0
97.5°	0	0	0	0	0
100°	0	0	0	0	0
102.5°	0	0	0	0	0
105°	0	0	0	0	0
107.5°	0	0	0	0	0
110°	0	0	0	0	0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	0	0	0	0	0
115°	0	0	0	0	0
117.5°	0	0	0	0	0
120°	0	0	0	0	0
122.5°	0	0	0	0	0
125°	0	0	0	0	0
127.5°	0	0	0	0	0
130°	0	0	0	0	0
132.5°	0	0	0	0	0
135°	0	0	0	0	0
137.5°	0	0	0	0	0
140°	0	0	0	0	0
142.5°	0	0	0	0	0
145°	0	0	0	0	0
147.5°	0	0	0	0	0
150°	0	0	0	0	0
152.5°	0	0	0	0	0
155°	0	0	0	0	0
157.5°	0	0	0	0	0
160°	0	0	0	0	0
162.5°	0	0	0	0	0
165°	0	0	0	0	0
167.5°	0	0	0	0	0
170°	0	0	0	0	0
172.5°	0	0	0	0	0
175°	0	0	0	0	0
177.5°	0	0	0	0	0
180°	0	0	0	0	0

(END OF REPORT)