

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: P30102

Luminaire Tested: **CRG-24-332-UNV-IK12**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P30102  
Test Lab: METALUX RESEARCH LABS  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: CRG-24-332-UNV-IK12  
Description: FAILSAFE TRISEAL CRG SERIES 2x4 3L T8  
Light Source: (3) DOUBLE ENDED T8 4 FOOT LINEAR FLUORESCENT LAMPS  
F32W T8 32 WATTS  
Ballast/Driver: (1) UNIVERSAL ELECTRONIC BALLAST  
B332IUNV

**Summary**

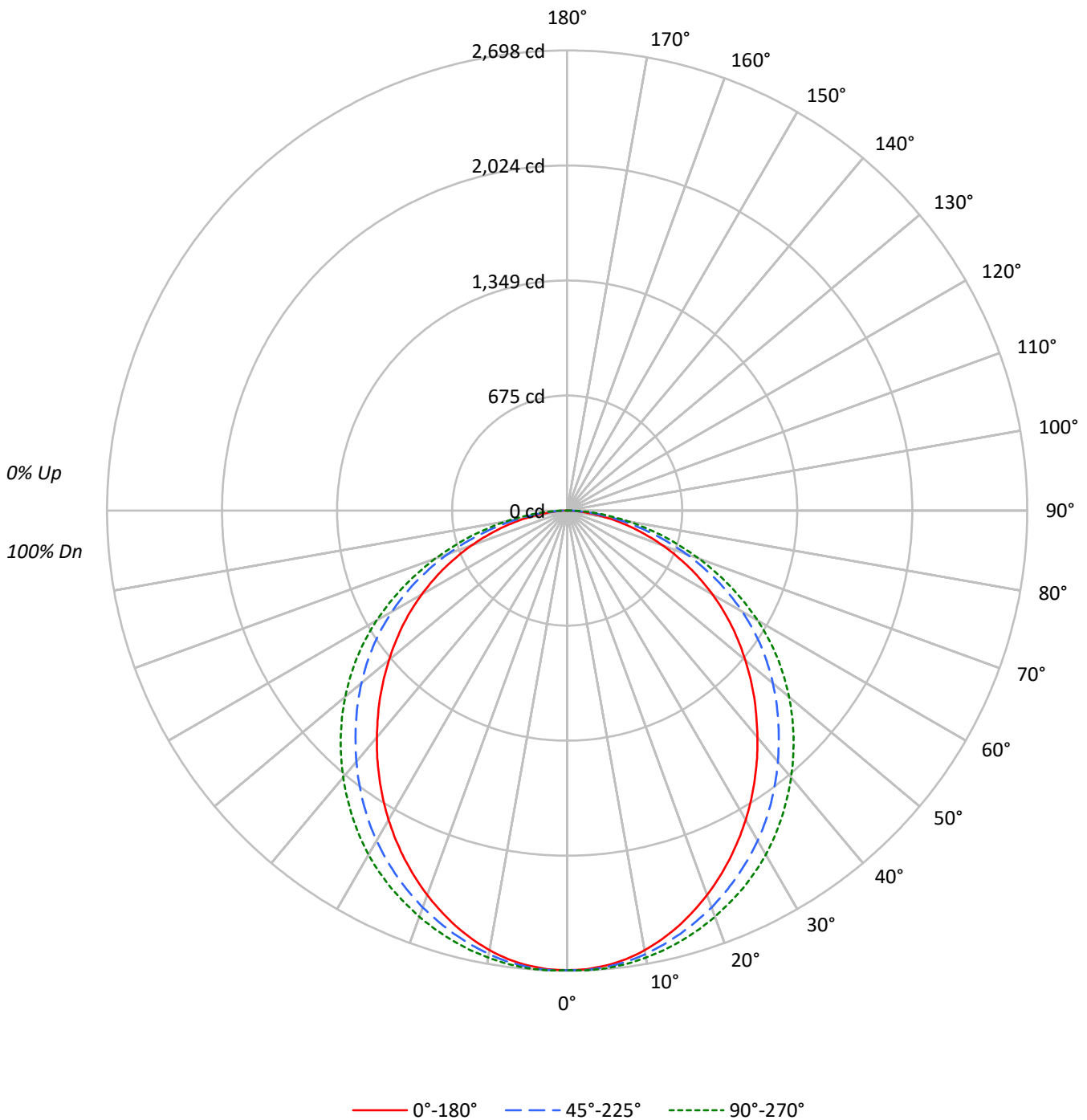
Lumens per Lamp: 3100 (3 lamps)  
Luminaire Lumens: 7549.5 lumens  
Efficiency: 81.2%  
Efficacy: 98.2 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.28 / 1.36  
Luminous Opening: Rectangular (W 1.75' x L: 3.75' x H: 0')  
CIE Type: Direct

Input Watts (W): 76.9  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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	97	97	97	97	94	94	94	94	90	90	90	86	86	86	83	83	83	81				81
1	88	84	81	78	86	82	79	76	79	76	74	76	74	72	73	71	69	68				68
2	80	73	68	63	78	72	67	62	69	65	61	66	63	59	64	61	58	56				56
3	73	64	58	52	71	63	57	52	61	55	51	58	54	50	56	52	49	47				47
4	67	57	50	44	65	56	49	44	54	48	43	52	47	43	50	46	42	40				40
5	61	51	43	38	60	50	43	38	48	42	37	47	41	37	45	40	37	35				35
6	57	46	38	33	55	45	38	33	44	37	33	42	37	32	41	36	32	30				30
7	53	41	34	29	51	41	34	29	40	33	29	38	33	29	37	32	29	27				27
8	49	38	31	26	48	37	31	26	36	30	26	35	30	26	34	29	26	24				24
9	46	35	28	24	45	34	28	23	33	27	23	32	27	23	32	27	23	22				22
10	43	32	26	21	42	32	25	21	31	25	21	30	25	21	29	24	21	20				20

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

	0°	45°	90°
0°	4420	4420	4420
5°	4408	4422	4434
10°	4360	4399	4432
15°	4283	4361	4429
20°	4187	4322	4423
25°	4081	4278	4419
30°	3966	4233	4413
35°	3842	4177	4393
40°	3715	4115	4374
45°	3598	4062	4354
50°	3478	4019	4333
55°	3366	3972	4304
60°	3235	3894	4235
65°	3066	3765	4110
70°	2858	3563	3937
75°	2560	3251	3707
80°	2182	2853	3419
85°	1637	2390	3180



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	254.8	3.4	2.7	0°	2695	2695	2695	2695	2695	
10°-20°	723.8	9.6	7.8	5°	2677	2680	2686	2689	2693	254
20°-30°	1085.5	14.4	11.7	15°	2522	2536	2568	2595	2608	710
30°-40°	1295.3	17.2	13.9	25°	2255	2291	2364	2421	2442	1038
40°-50°	1337.0	17.7	14.4	35°	1919	1971	2086	2169	2194	1200
50°-60°	1220.2	16.2	13.1	45°	1551	1615	1751	1850	1877	1196
60°-70°	939.4	12.4	10.1	55°	1177	1249	1389	1487	1505	1052
70°-80°	538.0	7.1	5.8	65°	790	855	970	1053	1059	782
80°-90°	152.9	2.0	1.6	75°	404	446	513	575	585	430
90°-100°	2.6	0.0	0.0	85°	87	103	127	158	169	102
100°-110°	0.0	0.0	0.0	90°	7	10	17	29	34	7
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°	2064.1	27.3	22.2	165°	0	0	0	0	0	0
0°-40°	3359.4	44.5	36.1	175°	0	0	0	0	0	0
0°-60°	5916.6	78.4	63.6	180°	0	0	0	0	0	0
0°-90°	7546.9	100.0	81.1							
90°-120°	2.6	0.0	0.0							
90°-150°	2.6	0.0	0.0							
90°-180°	3.0	0.0	0.0							
0°-180°	7549.5	100.0	81.2							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2695	2695	2695	2695	2695
2.5°	2691	2693	2696	2696	2698
5°	2677	2680	2686	2689	2693
7.5°	2653	2657	2668	2675	2681
10°	2618	2625	2641	2653	2661
12.5°	2574	2584	2607	2627	2638
15°	2522	2536	2568	2595	2608
17.5°	2463	2482	2524	2558	2574
20°	2399	2423	2476	2517	2534
22.5°	2329	2359	2422	2471	2489
25°	2255	2291	2364	2421	2442
27.5°	2176	2216	2301	2367	2388
30°	2094	2137	2235	2307	2330
32.5°	2008	2055	2163	2240	2264
35°	1919	1971	2086	2169	2194
37.5°	1829	1883	2006	2094	2120
40°	1735	1794	1922	2015	2043
42.5°	1643	1704	1837	1934	1962
45°	1551	1615	1751	1850	1877
47.5°	1457	1524	1664	1764	1790
50°	1363	1433	1575	1675	1698
52.5°	1270	1342	1483	1584	1604
55°	1177	1249	1389	1487	1505
57.5°	1082	1154	1290	1385	1400
60°	986	1057	1187	1279	1291
62.5°	888	957	1080	1168	1176
65°	790	855	970	1053	1059
67.5°	692	753	856	934	940
70°	596	650	743	814	821
72.5°	499	547	627	693	701
75°	404	446	513	575	585
77.5°	315	348	404	461	470
80°	231	257	302	350	362
82.5°	154	174	208	249	261
85°	87	103	127	158	169
87.5°	36	47	61	82	90
90°	7	10	17	29	34
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)