

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: P30101

Luminaire Tested: **CRL-24-654T5-UNV-IK12**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P30101  
Test Lab: METALUX RESEARCH LABS  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: CRL-24-654T5-UNV-IK12  
Description: FAILSAFE TRISEAL CRL SERIES 2x4 6L T5  
Light Source: (6) DOUBLE ENDED T5 4 FOOT HIGH OUTPUT LINEAR FLUORESCENT LAMPS  
F54W T5HO 54 WATTS  
Ballast/Driver: ADVANCE CENTIUM  
(3) ICN-2S54

**Summary**

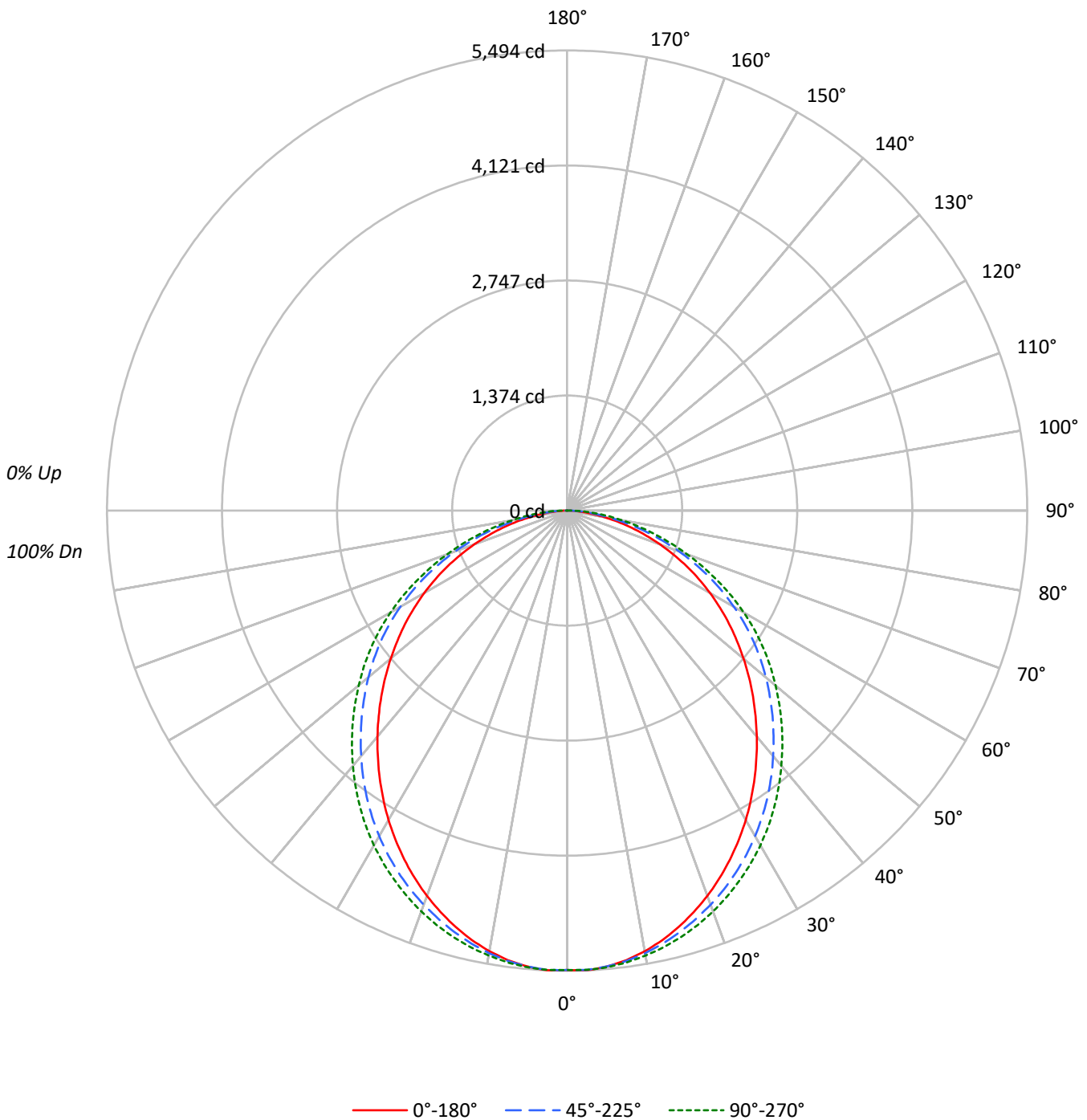
Lumens per Lamp: 4400 (6 lamps)  
Luminaire Lumens: 14897.4 lumens  
Efficiency: 56.4%  
Efficacy: 49.5 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.25 / 1.34  
Luminous Opening: Rectangular (W 1.75' x L: 3.75' x H: 0')  
CIE Type: Direct

Input Watts (W): 301  
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	67	67	67	67	66	66	66	66	63	63	63	60	60	60	58	58	58	56
1	61	59	56	54	60	57	55	53	55	53	51	53	51	50	51	50	48	47
2	56	51	47	44	54	50	47	44	48	45	42	46	44	42	44	42	41	39
3	51	45	40	37	49	44	40	36	42	39	36	41	38	35	39	37	34	33
4	47	40	35	31	45	39	34	31	38	34	30	36	33	30	35	32	30	28
5	43	36	31	27	42	35	30	27	34	30	26	33	29	26	32	28	26	25
6	40	32	27	23	39	32	27	23	31	26	23	30	26	23	29	25	23	21
7	37	29	24	21	36	29	24	21	28	24	20	27	23	20	26	23	20	19
8	34	27	22	18	33	26	22	18	25	21	18	25	21	18	24	21	18	17
9	32	24	20	17	31	24	20	17	23	19	16	23	19	16	22	19	16	15
10	30	23	18	15	29	22	18	15	22	18	15	21	17	15	21	17	15	14

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

	0°	45°	90°
0°	8998	8998	8998
5°	8996	8996	9011
10°	8897	8937	8984
15°	8738	8842	8945
20°	8546	8741	8890
25°	8323	8629	8817
30°	8078	8500	8739
35°	7811	8356	8638
40°	7543	8194	8520
45°	7279	8044	8404
50°	7017	7905	8288
55°	6757	7758	8176
60°	6466	7552	7991
65°	6109	7246	7696
70°	5654	6805	7304
75°	5057	6179	6838
80°	4232	5308	6281
85°	3180	4385	5890



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	518.3	3.5	2.0	0°	5486	5486	5486	5486	5486	
10°-20°	1467.6	9.9	5.6	5°	5464	5457	5464	5463	5473	518
20°-30°	2187.5	14.7	8.3	15°	5146	5159	5207	5245	5268	1449
30°-40°	2587.3	17.4	9.8	25°	4599	4646	4768	4846	4872	2117
40°-50°	2640.2	17.7	10.0	35°	3901	3979	4173	4288	4314	2440
50°-60°	2378.7	16.0	9.0	45°	3138	3240	3468	3597	3623	2421
60°-70°	1808.7	12.1	6.9	55°	2363	2483	2713	2847	2859	2111
70°-80°	1018.7	6.8	3.9	65°	1574	1684	1867	1992	1983	1557
80°-90°	285.2	1.9	1.1	75°	798	863	975	1066	1079	847
90°-100°	5.1	0.0	0.0	85°	169	191	233	292	313	198
100°-110°	0.0	0.0	0.0	90°	15	19	32	55	69	14
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°	4173.4	28.0	15.8	165°	0	0	0	0	0	0
0°-40°	6760.7	45.4	25.6	175°	0	0	0	0	0	0
0°-60°	11779.6	79.1	44.6	180°	0	0	0	0	0	0
0°-90°	14892.3	100.0	56.4							
90°-120°	5.1	0.0	0.0							
90°-150°	5.1	0.0	0.0							
90°-180°	5.0	0.0	0.0							
0°-180°	14897.4	100.0	56.4							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5486	5486	5486	5486	5486
2.5°	5494	5485	5489	5481	5488
5°	5464	5457	5464	5463	5473
7.5°	5414	5409	5424	5427	5441
10°	5342	5344	5366	5379	5394
12.5°	5253	5259	5294	5318	5339
15°	5146	5159	5207	5245	5268
17.5°	5026	5047	5112	5161	5187
20°	4896	4924	5008	5065	5093
22.5°	4753	4789	4894	4961	4988
25°	4599	4646	4768	4846	4872
27.5°	4436	4492	4633	4722	4750
30°	4265	4328	4488	4587	4614
32.5°	4086	4156	4334	4444	4470
35°	3901	3979	4173	4288	4314
37.5°	3713	3798	4003	4124	4151
40°	3523	3613	3827	3952	3979
42.5°	3330	3426	3647	3776	3804
45°	3138	3240	3468	3597	3623
47.5°	2944	3052	3282	3415	3437
50°	2750	2864	3098	3230	3248
52.5°	2555	2673	2908	3043	3059
55°	2363	2483	2713	2847	2859
57.5°	2165	2287	2510	2643	2652
60°	1971	2089	2302	2433	2436
62.5°	1773	1889	2088	2217	2215
65°	1574	1684	1867	1992	1983
67.5°	1374	1475	1643	1759	1750
70°	1179	1269	1419	1523	1523
72.5°	985	1064	1194	1290	1298
75°	798	863	975	1066	1079
77.5°	617	669	759	847	866
80°	448	490	562	645	665
82.5°	298	329	384	457	481
85°	169	191	233	292	313
87.5°	71	86	113	155	172
90°	15	19	32	55	69
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)