

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: 168P152

Luminaire Tested: **CFS24-454T5HO-1K12-GLR-ALP**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: 168P152
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: CFS24-454T5HO-1K12-GLR-ALP
Description: FAIL-SAFE 2 X 4 Fail-Safe CFS Series with a Prismatic Acrylic Lens.
Light Source: Four - F54T5H0/830 - 4400 Lumens ea. - 54 Watts ea.
Ballast/Driver: Two - Advance ICN-2S54 Electronic - L.O.B.F. = Unknown

Summary

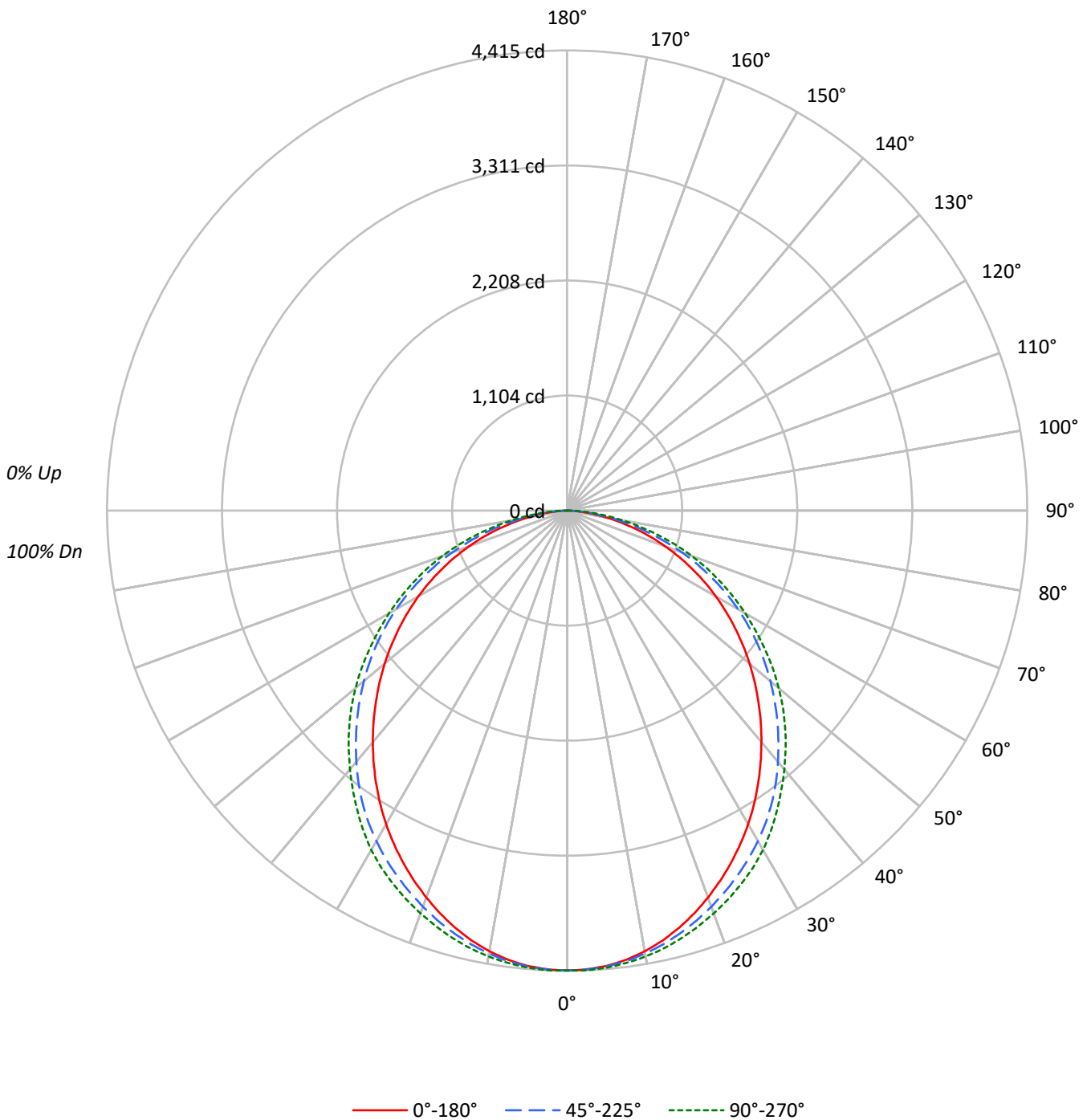
Lumens per Lamp: 4400 (4 lamps)
Luminaire Lumens: 12156.5 lumens
Efficiency: 69.1%
Efficacy: 54.8 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.26 / 1.36
Luminous Opening: Rectangular (W 1.65' x L: 3.65' x H: 0')
CIE Type: Direct

Input Watts (W): 222
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	82	82	82	82	80	80	80	80	77	77	77	73	73	73	70	70	70	69
1	75	72	69	66	73	70	68	65	67	65	63	65	63	61	62	61	59	58
2	68	63	58	54	66	61	57	53	59	55	52	57	54	51	54	52	50	48
3	62	55	49	45	61	54	49	44	52	47	44	50	46	43	48	45	42	41
4	57	49	43	38	55	48	42	38	46	41	37	44	40	37	43	39	36	35
5	52	44	37	33	51	43	37	33	41	36	32	40	35	32	39	35	31	30
6	48	39	33	29	47	39	33	28	37	32	28	36	31	28	35	31	28	26
7	45	36	29	25	44	35	29	25	34	29	25	33	28	25	32	28	25	23
8	42	32	27	23	41	32	26	22	31	26	22	30	26	22	29	25	22	21
9	39	30	24	20	38	29	24	20	29	24	20	28	23	20	27	23	20	19
10	37	27	22	18	36	27	22	18	26	22	18	26	21	18	25	21	18	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7887	7887	7887
5°	7865	7874	7896
10°	7791	7833	7884
15°	7670	7768	7858
20°	7513	7692	7823
25°	7346	7624	7794
30°	7170	7555	7758
35°	6973	7471	7661
40°	6766	7342	7562
45°	6557	7206	7479
50°	6353	7079	7371
55°	6132	6943	7214
60°	5891	6770	7053
65°	5599	6504	6881
70°	5226	6109	6647
75°	4696	5511	6222
80°	3932	4642	5537
85°	2830	3507	4676



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	416.7	3.4	2.4	0°	4413	4413	4413	4413	4413	
10°-20°	1183.2	9.7	6.7	5°	4384	4381	4389	4394	4401	416
20°-30°	1775.2	14.6	10.1	15°	4145	4159	4198	4228	4247	1168
30°-40°	2118.0	17.4	12.0	25°	3725	3772	3866	3931	3952	1716
40°-50°	2170.3	17.9	12.3	35°	3196	3268	3424	3504	3511	1998
50°-60°	1950.0	16.0	11.1	45°	2594	2674	2851	2950	2959	2003
60°-70°	1485.5	12.2	8.4	55°	1968	2050	2228	2308	2315	1760
70°-80°	841.9	6.9	4.8	65°	1324	1397	1538	1598	1627	1310
80°-90°	215.7	1.8	1.2	75°	680	724	798	867	901	722
90°-100°	0.0	0.0	0.0	85°	138	151	171	211	228	165
100°-110°	0.0	0.0	0.0	90°	0	0	0	0	0	8
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°	3375.1	27.8	19.2	165°	0	0	0	0	0	0
0°-40°	5493.1	45.2	31.2	175°	0	0	0	0	0	0
0°-60°	9613.4	79.1	54.6	180°	0	0	0	0	0	0
0°-90°	12156.5	100.0	69.1							
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°	12156.5	100.0	69.1							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4413	4413	4413	4413	4413
2.5°	4405	4402	4406	4410	4415
5°	4384	4381	4389	4394	4401
7.5°	4346	4347	4359	4369	4377
10°	4293	4297	4316	4334	4344
12.5°	4226	4234	4262	4286	4301
15°	4145	4159	4198	4228	4247
17.5°	4053	4075	4125	4163	4183
20°	3950	3981	4044	4092	4113
22.5°	3841	3880	3957	4014	4037
25°	3725	3772	3866	3931	3952
27.5°	3603	3658	3767	3842	3862
30°	3474	3536	3661	3744	3759
32.5°	3338	3407	3548	3631	3640
35°	3196	3268	3424	3504	3511
37.5°	3049	3123	3289	3370	3377
40°	2900	2974	3147	3233	3241
42.5°	2750	2824	3000	3093	3103
45°	2594	2674	2851	2950	2959
47.5°	2441	2521	2700	2802	2809
50°	2285	2366	2546	2646	2651
52.5°	2127	2209	2389	2482	2486
55°	1968	2050	2228	2308	2315
57.5°	1808	1889	2063	2132	2143
60°	1648	1726	1894	1953	1973
62.5°	1487	1564	1719	1775	1800
65°	1324	1397	1538	1598	1627
67.5°	1162	1229	1356	1419	1452
70°	1000	1061	1169	1238	1272
72.5°	840	892	983	1053	1086
75°	680	724	798	867	901
77.5°	527	562	620	686	716
80°	382	404	451	510	538
82.5°	250	269	299	350	376
85°	138	151	171	211	228
87.5°	55	63	72	97	107
90°	0	0	0	0	0
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)