

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: P30116

Luminaire Tested: **CRF-24-324T5-UNV-IK12**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P30116
Test Lab: METALUX RESEARCH LABS
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: CRF-24-324T5-UNV-IK12
Description: FAILSAFE TRISEAL CRF SERIES 2x2 3L T5
Light Source: (3) DOUBLE ENDED T5 2 FOOT HIGH OUTPUT LINEAR FLUORESCENT LAMPS
F24W T5HO 24 WATTS
Ballast/Driver: ADVANCE CENTIUM
(2) ICN-2S54

Summary

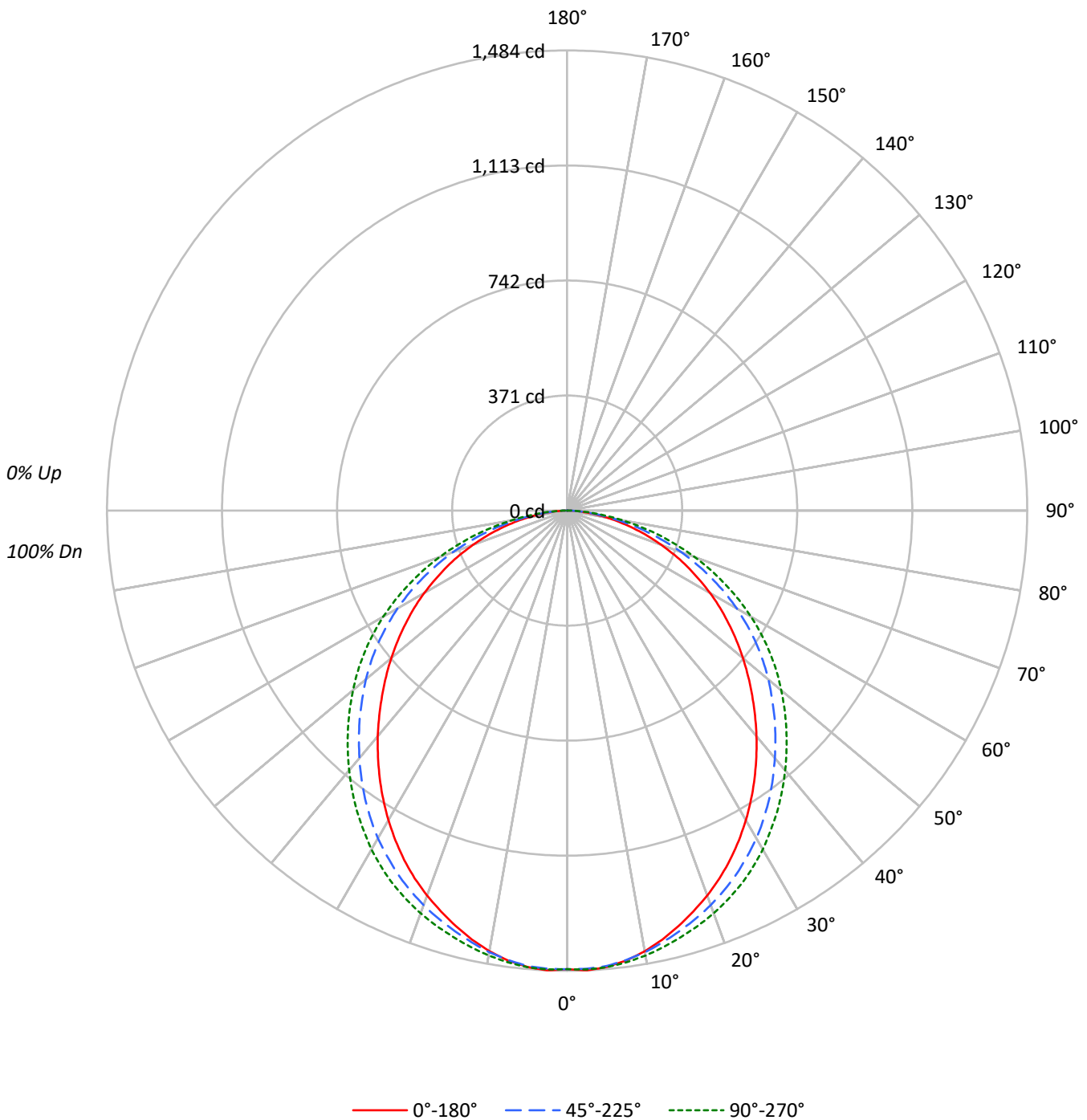
Lumens per Lamp: 2000 (3 lamps)
Luminaire Lumens: 4064.5 lumens
Efficiency: 67.7%
Efficacy: 42.1 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 1.26 / 1.35
Luminous Opening: Rectangular (W 1.75' x L: 1.75' x H: 0')
CIE Type: Direct

Input Watts (W): 96.5
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	81	81	81	81	79	79	79	79	75	75	75		72	72	72		69	69	69	68
1	74	70	68	65	72	69	66	64	66	64	62		63	62	60		61	59	58	57
2	67	61	57	53	65	60	56	52	58	54	51		55	52	50		53	51	49	47
3	61	54	48	44	59	53	48	43	51	46	43		49	45	42		47	44	41	40
4	56	48	42	37	54	47	41	37	45	40	36		44	39	36		42	38	35	34
5	51	43	37	32	50	42	36	32	40	35	31		39	35	31		38	34	31	29
6	47	38	32	28	46	38	32	28	37	31	28		35	31	27		34	30	27	26
7	44	35	29	25	43	34	29	25	33	28	24		32	28	24		31	27	24	23
8	41	32	26	22	40	31	26	22	30	25	22		30	25	22		29	25	22	20
9	38	29	24	20	37	29	23	20	28	23	20		27	23	20		27	22	19	18
10	36	27	22	18	35	27	21	18	26	21	18		25	21	18		25	21	18	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5198	5198	5198
5°	5211	5201	5215
10°	5150	5161	5200
15°	5047	5105	5178
20°	4941	5064	5169
25°	4820	5014	5154
30°	4679	4955	5122
35°	4522	4874	5072
40°	4359	4781	5019
45°	4195	4702	4971
50°	4046	4631	4932
55°	3897	4553	4890
60°	3740	4443	4815
65°	3551	4266	4682
70°	3319	4018	4491
75°	3015	3639	4183
80°	2611	3097	3684
85°	2137	2420	3025



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	139.9	3.4	2.3	0°	1479	1479	1479	1479	1479	
10°-20°	396.2	9.7	6.6	5°	1477	1473	1474	1476	1478	140
20°-30°	593.7	14.6	9.9	15°	1387	1390	1403	1417	1423	391
30°-40°	704.1	17.3	11.7	25°	1243	1256	1293	1321	1329	572
40°-50°	720.5	17.7	12.0	35°	1054	1077	1136	1172	1182	659
50°-60°	652.4	16.1	10.9	45°	844	876	946	990	1000	652
60°-70°	499.6	12.3	8.3	55°	636	672	743	789	798	569
70°-80°	283.4	7.0	4.7	65°	427	457	513	557	563	423
80°-90°	74.6	1.8	1.2	75°	222	239	268	299	308	236
90°-100°	0.3	0.0	0.0	85°	53	56	60	71	75	59
100°-110°	0.0	0.0	0.0	90°	1	1	2	3	3	3
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°	1129.7	27.8	18.8	165°	0	0	0	0	0	0
0°-40°	1833.7	45.1	30.6	175°	0	0	0	0	0	0
0°-60°	3206.7	78.9	53.4	180°	0	0	0	0	0	0
0°-90°	4064.2	100.0	67.7							
90°-120°	0.3	0.0	0.0							
90°-150°	0.3	0.0	0.0							
90°-180°	0.0	0.0	0.0							
0°-180°	4064.5	100.0	67.7							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1479	1479	1479	1479	1479
2.5°	1484	1479	1479	1480	1481
5°	1477	1473	1474	1476	1478
7.5°	1463	1460	1462	1466	1469
10°	1443	1440	1446	1453	1457
12.5°	1417	1416	1426	1436	1441
15°	1387	1390	1403	1417	1423
17.5°	1355	1360	1380	1397	1404
20°	1321	1329	1354	1375	1382
22.5°	1284	1294	1325	1349	1357
25°	1243	1256	1293	1321	1329
27.5°	1199	1215	1257	1290	1297
30°	1153	1171	1221	1254	1262
32.5°	1104	1125	1179	1214	1222
35°	1054	1077	1136	1172	1182
37.5°	1002	1027	1090	1128	1139
40°	950	978	1042	1083	1094
42.5°	897	927	994	1037	1047
45°	844	876	946	990	1000
47.5°	792	826	896	941	951
50°	740	775	847	892	902
52.5°	688	724	796	842	851
55°	636	672	743	789	798
57.5°	585	620	688	735	742
60°	532	566	632	677	685
62.5°	479	512	573	618	625
65°	427	457	513	557	563
67.5°	375	402	452	493	501
70°	323	347	391	428	437
72.5°	272	292	329	363	372
75°	222	239	268	299	308
77.5°	174	186	209	235	244
80°	129	138	153	174	182
82.5°	88	94	103	119	125
85°	53	56	60	71	75
87.5°	22	24	26	31	34
90°	1	1	2	3	3
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)