

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: ITL50342

Luminaire Tested: **FMS24CR-428-120-80/86**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: ITL50342
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FMS24CR-428-120-80/86
Description: FABRICATED METAL HOUSING WITH WHITE PAINTED INTERIOR FINISH,
FABRICATED WHITE PAINTED METAL BALLAST COVER, 1/4" CLEAR
POLYCARBONATE LENS WITH 1/8" CLEAR ACRYLIC PRISMATIC OVERLAY
IN FABRICATED WHITE PAINTED METAL DOOR FRAME.
Light Source: FOUR 28-WATT T-5 SYLVANIA FP28/835 LINEAR FLUORESCENTS.
Ballast/Driver: TWO ENERGY SAVINGS ES-2-T5-28-120-F, BALLAST B223
L.O.B.F. = 92.6%, BALLAST B224 L.O.B.F. = 91.8%. AVERAGE
L.O.B.F. = 92.2% (USED TO CALCULATE L.E.R. AND C.O.L.).

Summary

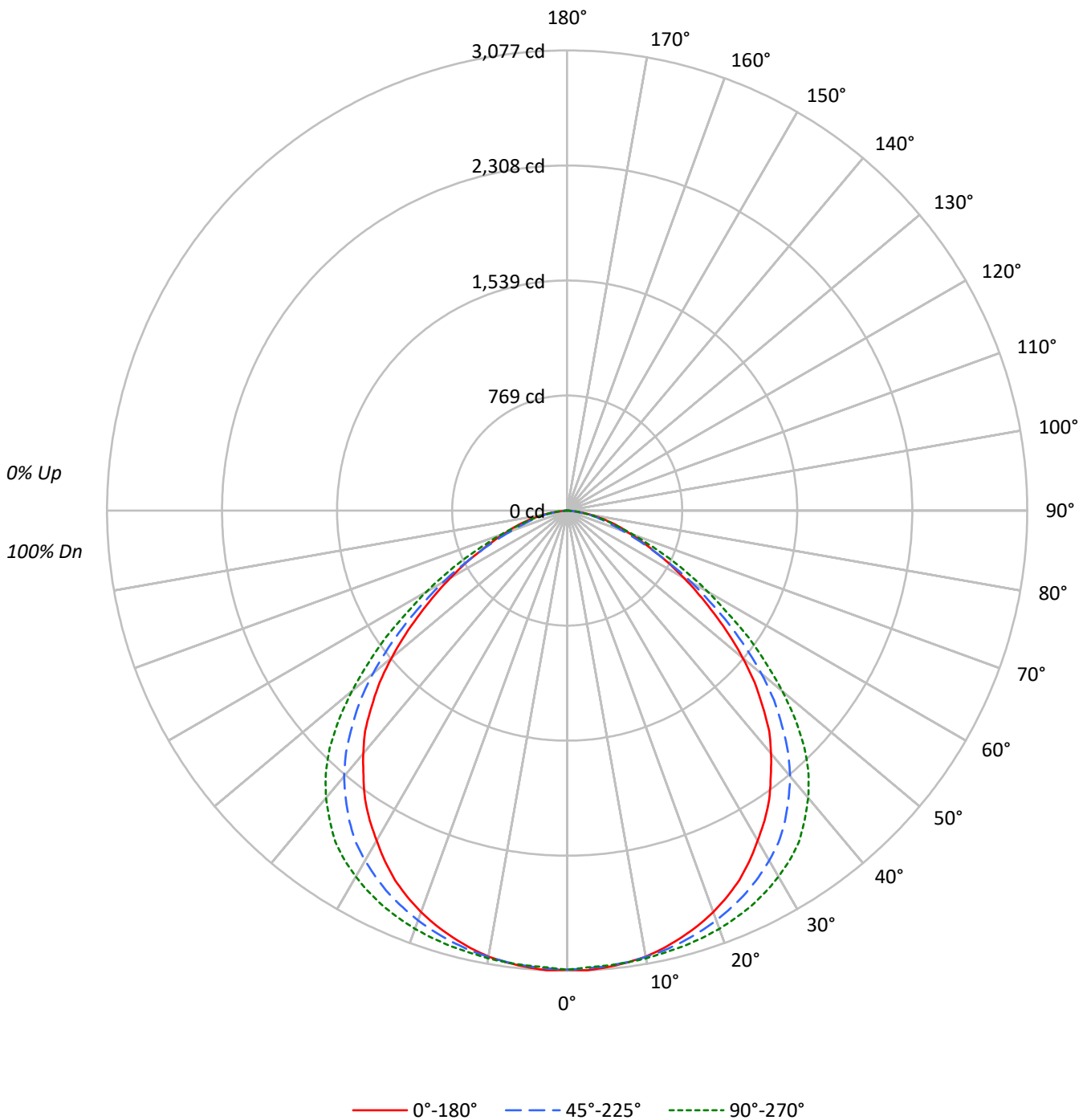
Lumens per Lamp: 2900 (4 lamps)
Luminaire Lumens: 7824.9 lumens
Efficiency: 67.5%
Efficacy: 65.4 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.36 / 1.38
Luminous Opening: Rectangular (W 1.54' x L: 3.69' x H: 0')
CIE Type: Direct

Input Watts (W): 119.7
Input Voltage (V): NR
Input Current (A_{in}): 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

TEST NUMBER: ITL50342

CATALOG NUMBER: FMS24CR-428-120-80/86

Luminous Intensity Polar Plot





TEST NUMBER: ITL50342

CATALOG NUMBER: FMS24CR-428-120-80/86

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	80	80	80	80	78	78	78	78	75	75	75	72	72	72	69	69	69	67
1	74	71	69	67	72	70	68	66	67	65	63	64	63	62	62	61	60	58
2	68	63	59	55	66	62	58	55	60	56	54	57	55	52	55	53	51	50
3	63	56	51	47	61	55	50	46	53	49	46	51	48	45	49	47	44	43
4	58	50	44	40	56	49	44	40	47	43	39	46	42	39	44	41	38	37
5	53	45	39	35	52	44	39	35	43	38	34	41	37	34	40	37	34	32
6	49	41	35	31	48	40	34	31	39	34	30	38	33	30	37	33	30	28
7	46	37	31	27	44	36	31	27	35	30	27	34	30	27	33	30	27	25
8	42	34	28	24	41	33	28	24	32	28	24	32	27	24	31	27	24	23
9	40	31	26	22	39	31	25	22	30	25	22	29	25	22	28	24	22	20
10	37	29	23	20	36	28	23	20	28	23	20	27	23	20	26	22	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5804	5804	5804
5°	5817	5802	5796
10°	5813	5819	5836
15°	5784	5841	5900
20°	5748	5869	5988
25°	5685	5893	6083
30°	5563	5899	6170
35°	5440	5858	6241
40°	5237	5726	6190
45°	4941	5431	6003
50°	4509	4986	5524
55°	3949	4338	4882
60°	3407	3626	4118
65°	2854	2827	3337
70°	2443	2173	2604
75°	2155	1797	2045
80°	1666	1426	1601
85°	824	824	824



TEST NUMBER: ITL50342

CATALOG NUMBER: FMS24CR-428-120-80/86

ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	291.2	3.7	2.5	0°	3070	3070	3070	3070	3070	
10°-20°	843.9	10.8	7.3	5°	3065	3064	3057	3057	3054	291
20°-30°	1301.9	16.6	11.2	15°	2955	2968	2984	3008	3014	834
30°-40°	1583.0	20.2	13.6	25°	2725	2760	2825	2896	2916	1253
40°-50°	1571.1	20.1	13.5	35°	2357	2424	2538	2656	2704	1469
50°-60°	1193.0	15.2	10.3	45°	1848	1922	2031	2186	2245	1422
60°-70°	682.9	8.7	5.9	55°	1198	1258	1316	1417	1481	1077
70°-80°	298.7	3.8	2.6	65°	638	682	632	707	746	647
80°-90°	59.2	0.8	0.5	75°	295	292	246	285	280	313
90°-100°	0.0	0.0	0.0	85°	38	49	38	48	38	58
100°-110°	0.0	0.0	0.0	90°	0	0	0	0	0	
110°-120°	0.0	0.0	0.0							
120°-130°	0.0	0.0	0.0							
130°-140°	0.0	0.0	0.0							
140°-150°	0.0	0.0	0.0							
150°-160°	0.0	0.0	0.0							
160°-170°	0.0	0.0	0.0							
170°-180°	0.0	0.0	0.0							
0°-30°	2437.1	31.1	21.0							
0°-40°	4020.1	51.4	34.7							
0°-60°	6784.1	86.7	58.5							
0°-90°	7824.9	100.0	67.5							
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°	7824.9	100.0	67.5							



TEST NUMBER: ITL50342

CATALOG NUMBER: FMS24CR-428-120-80/86

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3070	3070	3070	3070	3070
2.5°	3077	3074	3064	3061	3057
5°	3065	3064	3057	3057	3054
7.5°	3049	3050	3046	3051	3049
10°	3028	3029	3031	3040	3040
12.5°	2995	3002	3011	3027	3027
15°	2955	2968	2984	3008	3014
17.5°	2910	2929	2953	2988	2997
20°	2857	2881	2917	2963	2976
22.5°	2795	2824	2872	2930	2948
25°	2725	2760	2825	2896	2916
27.5°	2641	2691	2767	2855	2875
30°	2548	2606	2702	2800	2826
32.5°	2456	2522	2631	2737	2771
35°	2357	2424	2538	2656	2704
37.5°	2237	2320	2432	2561	2608
40°	2122	2207	2320	2462	2508
42.5°	2000	2071	2187	2341	2390
45°	1848	1922	2031	2186	2245
47.5°	1700	1769	1876	2013	2071
50°	1533	1602	1695	1835	1878
52.5°	1365	1425	1505	1628	1678
55°	1198	1258	1316	1417	1481
57.5°	1045	1095	1126	1215	1267
60°	901	941	959	1038	1089
62.5°	771	805	786	872	911
65°	638	682	632	707	746
67.5°	537	559	504	572	591
70°	442	456	393	456	471
72.5°	372	371	312	362	361
75°	295	292	246	285	280
77.5°	222	222	191	213	206
80°	153	156	131	147	147
82.5°	92	98	78	91	87
85°	38	49	38	48	38
87.5°	7	14	10	15	14
90°	0	0	0	0	0

(END OF REPORT)