

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: P188247

Luminaire Tested: **FUSL-N12-4-LD4-1STD-40-UNV-80/86**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P188247  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27114)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FUSL-N12-4-LD4-1STD-40-UNV-80/86  
Description:  
Light Source: (84) NICHIA ELM 4000K LED  
2UT217042A8404A  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

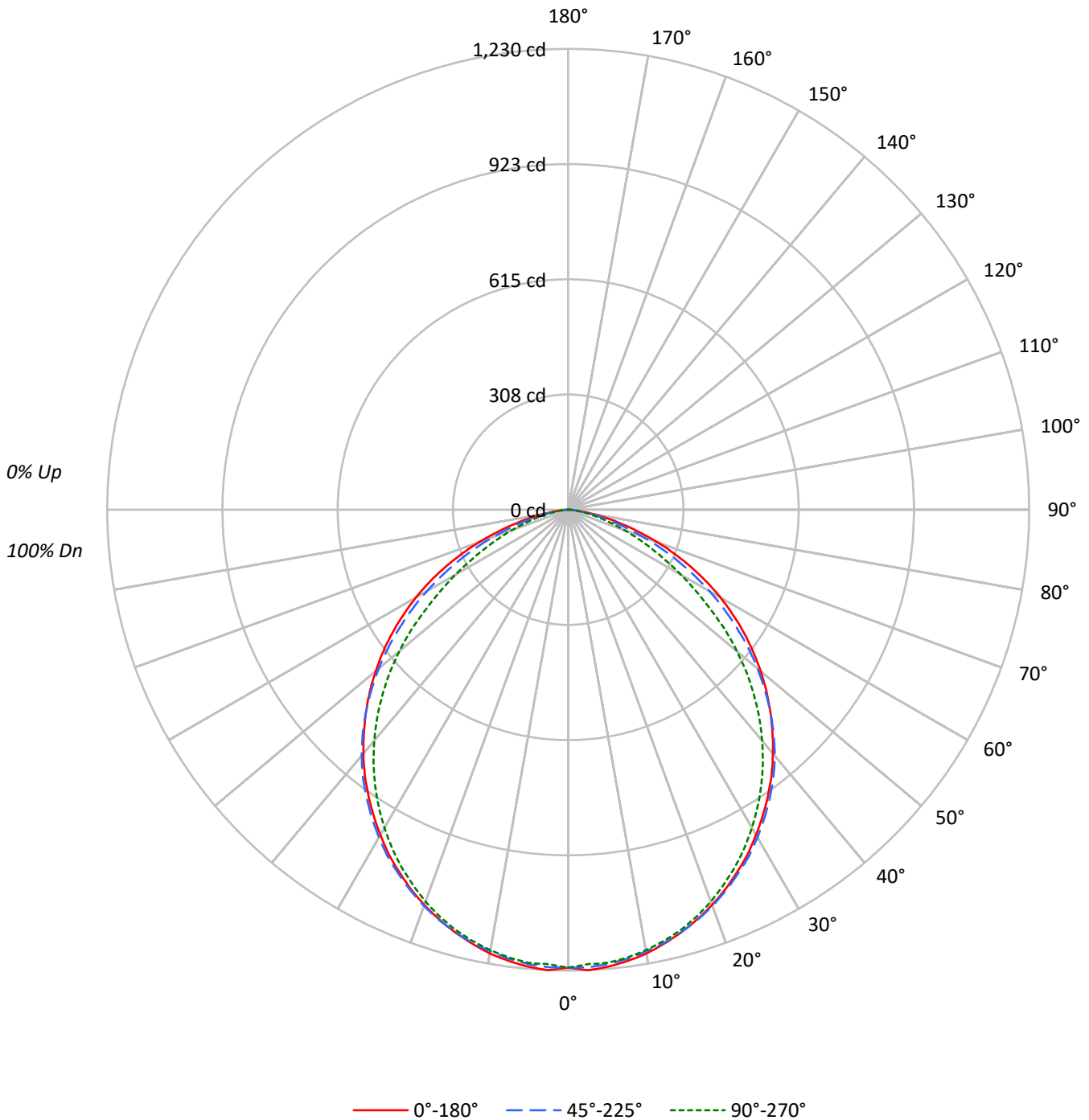
Lumens per Lamp: N/A  
Luminaire Lumens: 3031.5 lumens  
Efficiency: N/A  
Efficacy: 86.6 lumens/watt  
Spacing Criteria (0/90/45): 1.22 / 1.2 / 1.33  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 35  
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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	81	98	91	85	80	88	83	78	84	80	77	81	78	75	73
3	92	82	75	68	90	81	74	68	78	72	67	75	70	65	72	68	64	62
4	85	73	65	58	82	72	64	58	69	63	57	67	61	57	65	60	56	54
5	78	66	57	51	76	65	56	50	62	55	50	61	54	49	59	53	49	47
6	72	59	51	44	70	58	50	44	57	49	44	55	48	44	53	48	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	37
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	42	36	31	41	36	31	30
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	39	33	29	27

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

	0°	45°	90°
0°	3289	3289	3289
5°	3308	3289	3280
10°	3286	3271	3262
15°	3253	3251	3234
20°	3215	3222	3187
25°	3168	3183	3125
30°	3115	3138	3047
35°	3055	3082	2950
40°	2986	3012	2828
45°	2902	2902	2669
50°	2806	2762	2461
55°	2685	2574	2172
60°	2527	2347	1872
65°	2298	2048	1559
70°	1991	1677	1253
75°	1562	1265	950
80°	1051	848	671
85°	503	503	503



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	115.4	3.8
10°-20°	327.9	10.8
20°-30°	489.5	16.1
30°-40°	577.0	19.0
40°-50°	574.6	19.0
50°-60°	478.0	15.8
60°-70°	311.7	10.3
70°-80°	134.0	4.4
80°-90°	23.3	0.8
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	932.7	30.8
0°-40°	1509.8	49.8
0°-60°	2562.4	84.5
0°-90°	3031.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3031.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1222	1222	1222	1222	1222	
5°	1225	1212	1217	1213	1214	116
15°	1168	1158	1167	1163	1161	329
25°	1067	1061	1072	1056	1052	492
35°	930	933	938	908	898	582
45°	763	769	763	719	701	588
55°	572	578	549	496	463	511
65°	361	362	322	270	245	357
75°	150	149	122	100	91	162
85°	16	18	16	16	16	25
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1222.3	1222.3	1222.3	1222.3	1222.3
2.5°	1230.4	1216.6	1222.3	1219.0	1214.1
5°	1224.7	1211.7	1217.4	1213.3	1214.1
7.5°	1214.9	1203.5	1209.2	1205.1	1205.9
10°	1202.7	1191.2	1197.0	1193.7	1193.7
12.5°	1186.3	1175.7	1183.9	1179.0	1179.0
15°	1167.6	1157.8	1166.8	1162.7	1161.0
17.5°	1146.3	1137.4	1148.0	1141.4	1139.0
20°	1122.7	1114.5	1125.1	1115.3	1112.9
22.5°	1096.5	1089.2	1099.8	1086.7	1083.5
25°	1067.1	1061.4	1072.0	1056.5	1052.4
27.5°	1036.9	1032.8	1043.5	1024.7	1018.2
30°	1002.6	1001.0	1010.0	988.8	980.6
32.5°	966.7	968.3	974.9	949.6	940.6
35°	930.0	933.2	938.1	907.9	898.1
37.5°	891.6	894.9	899.8	864.7	853.2
40°	850.0	854.9	857.3	818.1	805.1
42.5°	806.7	813.2	811.6	770.8	755.2
45°	762.6	769.1	762.6	719.3	701.4
47.5°	717.7	725.9	712.0	667.1	646.7
50°	670.3	676.9	659.7	612.4	587.9
52.5°	622.2	628.7	605.8	555.2	528.3
55°	572.4	578.1	548.7	495.6	462.9
57.5°	520.9	526.6	492.3	435.2	403.3
60°	469.5	473.6	436.0	377.2	347.8
62.5°	415.6	418.0	378.0	321.7	293.9
65°	360.9	362.5	321.7	270.3	244.9
67.5°	307.0	306.2	265.4	221.3	199.2
70°	253.1	250.7	213.1	176.4	159.2
72.5°	198.4	200.0	164.1	136.4	123.3
75°	150.2	149.4	121.7	100.4	91.4
77.5°	107.8	106.1	84.9	70.2	64.5
80°	67.8	68.6	54.7	45.7	43.3
82.5°	38.4	38.4	31.0	27.8	26.9
85°	16.3	18.0	16.3	16.3	16.3
87.5°	4.1	7.3	9.0	10.6	10.6
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)