

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: P32762

Luminaire Tested: **FWL-D-2-LD3-UNV-STD/STD-35-80/89CW/84-ED**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P32762  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FWL-D-2-LD3-UNV-STD/STD-35-80/89CW/84-ED  
Description: FAILSAFE FWL LED FIXTURE WITH .125" PATTERN 12 ACRYLIC LENS,  
.020" DOT SCREEN & .125" POLYCARBONATE LENS  
Light Source: (98) LG 3500K LED  
1UT217049835  
Ballast/Driver: (1) LG ELECTRONIC DRIVER  
LEDINTA2000C24DO

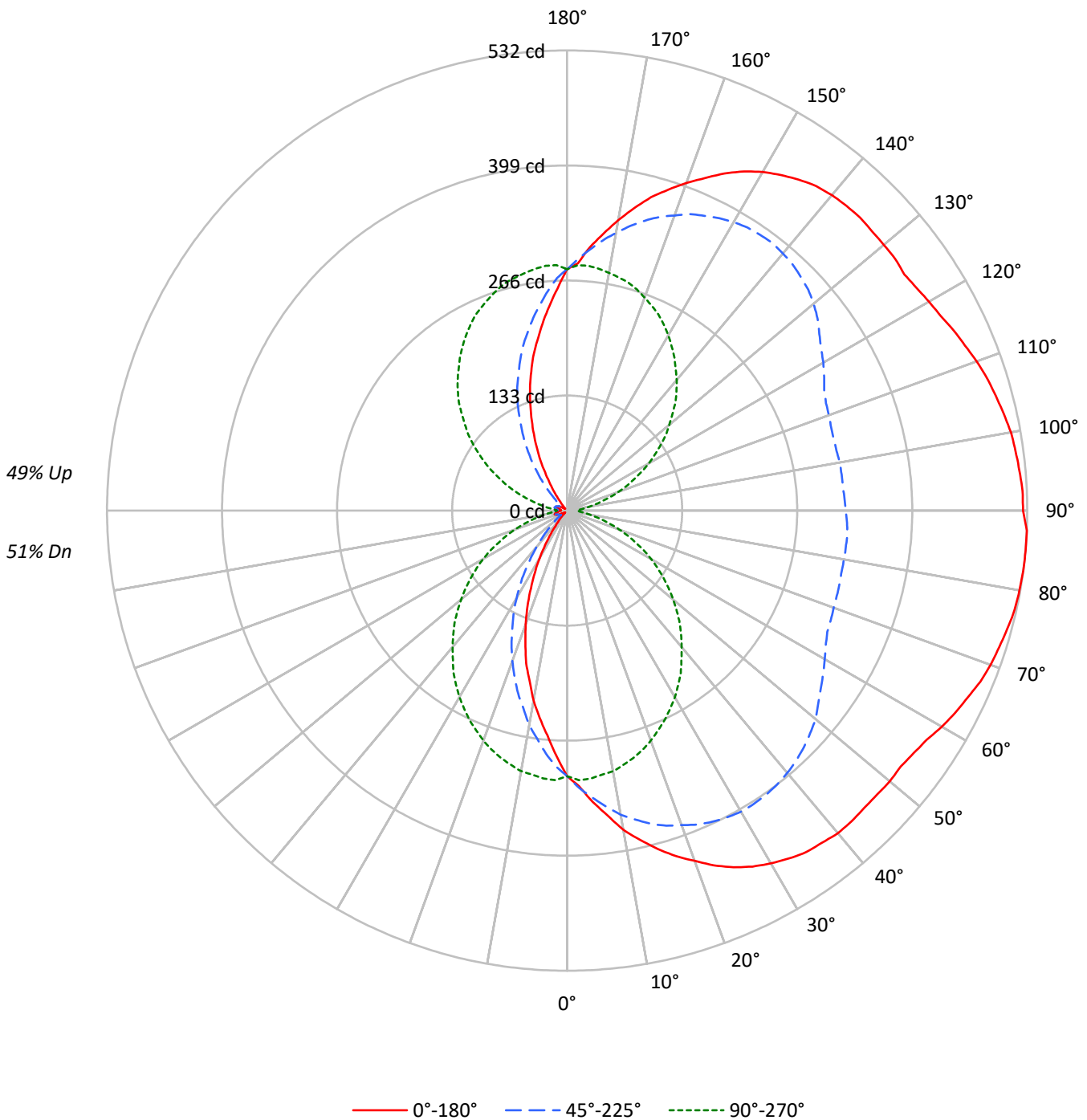
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2439.7 lumens  
Efficiency: N/A  
Efficacy: 64.0 lumens/watt  
Spacing Criteria (0/90/45): 1.3 / 1.21 / 1.41  
Luminous Opening: Rectangular (W 0.17' x L: 1.81' x H: 0')  
CIE Type: General Diffuse  
  
Input Watts (W): 38.1  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 0.3185  
Voltage Rise (V): NR  
Power Factor: 0.9974  
Total Harmonic Distortion (THDi): 6.16%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: 3 HR  
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										
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	50	30	10	50	30	10	0														
RCR																																						
0	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	51						51														
1	95	89	84	79	87	82	78	73	69	65	62	57	54	52	45	43	42	36						36														
2	85	76	69	63	78	70	64	58	59	54	49	48	44	41	38	36	33	28						28														
3	77	66	58	51	70	61	53	47	51	45	40	42	37	34	33	30	27	23						23														
4	70	58	49	43	64	54	46	40	45	39	34	37	32	28	29	26	23	19						19														
5	64	52	43	36	59	48	40	34	40	34	29	33	28	24	26	22	20	16						16														
6	59	46	37	31	54	43	35	29	36	30	25	30	25	21	24	20	17	14						14														
7	55	41	33	27	50	38	31	25	32	26	22	27	22	18	22	18	15	12						12														
8	51	38	29	24	46	35	27	22	29	23	19	24	20	16	20	16	13	11						11														
9	47	34	26	21	43	32	25	20	27	21	17	22	18	14	18	15	12	10						10														
10	44	31	24	19	40	29	22	18	25	19	15	21	16	13	17	13	11	9						9														

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

	0°	90°	180°
0°	10939	10939	10939
5°	12090	11124	9336
10°	13568	11072	8069
15°	14940	10919	6751
20°	16343	10731	5309
25°	17889	10497	3892
30°	19379	10245	2633
35°	20966	9961	1435
40°	22653	9582	651
45°	24490	9272	151
50°	26996	8869	222
55°	30378	8449	311
60°	35632	7982	499
65°	43084	7335	927
70°	54279	6668	1459
75°	72553	5920	1927
80°	108960	5335	2462
85°	217499	6133	4088



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	29.1	1.2
10°-20°	83.4	3.4
20°-30°	125.8	5.2
30°-40°	152.2	6.2
40°-50°	164.2	6.7
50°-60°	169.0	6.9
60°-70°	172.3	7.1
70°-80°	174.1	7.1
80°-90°	171.8	7.0
90°-100°	169.0	6.9
100°-110°	169.9	7.0
110°-120°	168.5	6.9
120°-130°	165.7	6.8
130°-140°	159.5	6.5
140°-150°	144.7	5.9
150°-160°	117.4	4.8
160°-170°	76.5	3.1
170°-180°	26.5	1.1
0°-30°	238.3	9.8
0°-40°	390.5	16.0
0°-60°	723.7	29.7
0°-90°	1241.9	50.9
90°-120°	507.5	20.8
90°-150°	977.4	40.1
90°-180°	1198.0	49.1
0°-180°	2439.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	307	307	307	307	307	
5°	338	333	311	282	261	33
15°	405	375	296	219	183	115
25°	455	397	267	150	99	210
35°	482	401	229	84	33	302
45°	486	387	184	32	3	377
55°	489	358	136	9	5	440
65°	511	332	87	11	11	507
75°	527	326	43	16	14	557
85°	532	325	15	14	10	435
90°	527	322	12	12	7	290
95°	525	320	16	11	8	428
105°	513	319	42	15	12	543
115°	493	328	85	11	11	489
125°	476	356	132	9	5	429
135°	479	382	177	25	3	370
145°	467	389	216	73	24	293
155°	430	376	250	135	86	199
165°	375	347	273	197	162	107
175°	306	303	284	255	237	30
180°	279	279	279	279	279	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	307	307	307	307	307	307	307	307	307
2.5°	319	319	321	319	312	303	296	288	284
5°	338	337	333	325	311	295	282	269	261
7.5°	355	352	345	330	308	286	266	251	242
10°	375	369	357	335	306	277	252	230	223
12.5°	390	384	366	337	301	265	234	213	201
15°	405	397	375	339	296	254	219	192	183
17.5°	419	409	382	340	290	242	202	172	160
20°	431	420	387	340	283	229	185	153	140
22.5°	444	431	393	338	275	216	168	133	120
25°	455	439	397	336	267	203	150	114	99
27.5°	464	446	400	333	258	190	134	95	81
30°	471	453	402	330	249	175	117	77	64
32.5°	477	457	402	325	239	161	101	61	47
35°	482	461	401	319	229	147	84	45	33
37.5°	484	463	399	312	217	132	69	32	20
40°	487	463	396	306	206	118	55	22	14
42.5°	487	461	392	298	195	104	43	15	8
45°	486	459	387	290	184	90	32	9	3
47.5°	486	456	381	281	172	77	23	5	3
50°	487	455	375	272	160	65	18	6	4
52.5°	486	453	366	263	148	54	13	6	4
55°	489	450	358	252	136	43	9	7	5
57.5°	493	451	351	240	124	35	10	7	6
60°	500	454	344	229	112	27	10	8	7
62.5°	506	458	337	216	100	22	10	9	8
65°	511	461	332	205	87	18	11	11	11
67.5°	517	465	330	192	76	14	12	14	13
70°	521	468	328	180	64	12	13	16	14
72.5°	524	470	327	169	53	12	15	16	15
75°	527	473	326	159	43	12	16	17	14
77.5°	530	475	325	150	34	12	17	16	14
80°	531	475	325	143	26	13	18	15	12
82.5°	532	476	325	137	20	13	16	13	11
85°	532	476	325	133	15	13	14	11	10
87.5°	532	476	324	131	13	13	13	9	8
90°	527	472	322	128	12	12	12	9	7
92.5°	527	470	321	129	13	12	11	8	7
95°	525	469	320	132	16	13	11	8	8
97.5°	523	468	320	136	20	13	13	9	8
100°	521	466	320	142	26	13	14	12	9
102.5°	517	462	319	150	34	13	15	13	10
105°	513	460	319	159	42	12	15	15	12
107.5°	509	457	320	169	52	12	14	15	13
110°	504	454	322	180	63	11	14	15	12



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	498	450	324	193	74	13	13	14	12
115°	493	446	328	204	85	16	11	13	11
117.5°	487	444	335	215	97	19	11	11	10
120°	483	442	342	227	109	24	10	9	8
122.5°	479	442	348	237	120	31	10	8	6
125°	476	444	356	247	132	39	9	7	5
127.5°	478	447	365	257	144	48	10	6	4
130°	478	449	372	266	154	58	15	6	4
132.5°	478	452	378	274	165	70	18	5	3
135°	479	454	382	282	177	82	25	6	3
137.5°	478	455	386	288	187	95	35	11	4
140°	476	454	388	295	197	108	46	15	9
142.5°	473	452	390	300	206	122	59	24	14
145°	467	448	389	305	216	135	73	36	24
147.5°	460	442	388	308	225	149	88	50	36
150°	452	435	385	311	234	162	103	65	51
152.5°	442	427	381	314	242	175	118	81	69
155°	430	417	376	315	250	188	135	99	86
157.5°	416	407	371	315	256	200	151	118	104
160°	403	395	363	315	262	211	165	135	123
162.5°	389	382	356	313	268	223	181	154	143
165°	375	368	347	311	273	232	197	171	162
167.5°	358	354	337	308	276	243	211	190	182
170°	341	339	326	304	279	253	226	206	199
172.5°	323	323	315	299	282	262	240	224	218
175°	306	306	303	293	284	271	255	242	237
177.5°	286	290	291	288	284	278	269	261	257
180°	279	279	279	279	279	279	279	279	279

(END OF REPORT)