

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: P32763

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

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P32763  
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-35-89CW/84-ED  
Description: FAILSAFE FWL LED FIXTURE WITH .020" DOT SCREEN & .125"  
POLYCARBONATE LENS  
Light Source: (98) LG 3500K LED  
1UT217049835  
Ballast/Driver: (1) LG ELECTRONIC DRIVER  
LEDINTA2000C24DO

**Summary**

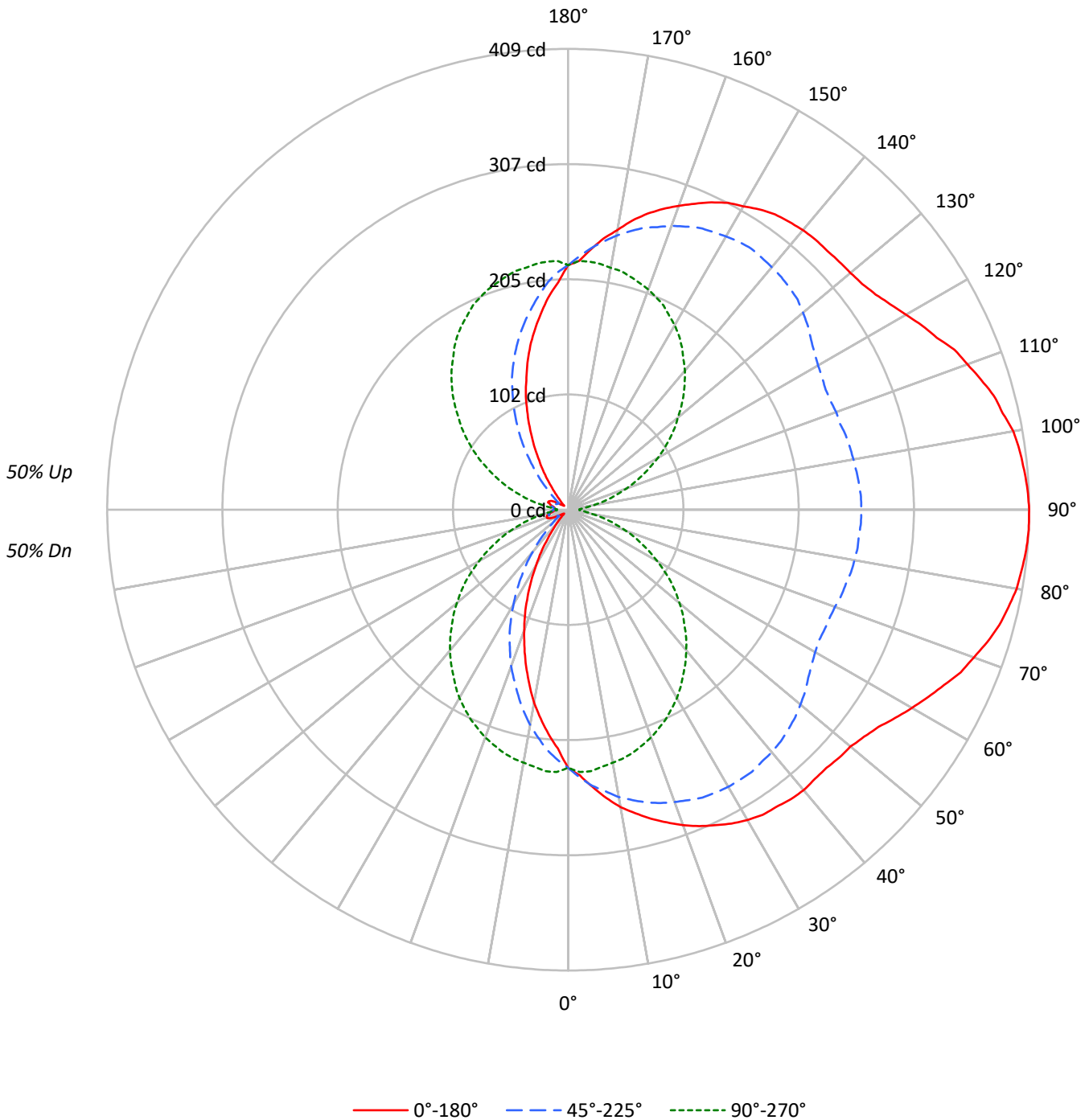
Lumens per Lamp: N/A  
Luminaire Lumens: 1864.3 lumens  
Efficiency: N/A  
Efficacy: 49.1 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.25 / 1.4  
Luminous Opening: Rectangular (W 0.17' x L: 1.81' x H: 0')  
CIE Type: General Diffuse

Input Watts (W): 38  
Input Voltage (V): NR  
Input Current (Ain): 0.3182  
Voltage Rise (V): NR  
Power Factor: 0.9973  
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				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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	94	89	84	79	87	82	77	73	68	65	62	56	53	51	45	43	41	35
2	85	76	68	62	78	70	63	58	58	53	49	47	44	40	38	35	32	27
3	77	66	57	51	70	61	53	47	50	45	40	41	37	33	33	29	26	22
4	70	58	49	42	64	53	45	39	44	38	33	36	32	28	29	25	22	18
5	64	51	42	36	58	47	39	33	39	33	28	32	27	24	26	22	19	16
6	59	46	37	31	54	42	34	29	35	29	24	29	24	20	23	19	16	13
7	54	41	33	27	50	38	30	25	32	26	21	26	22	18	21	17	15	12
8	50	37	29	23	46	35	27	22	29	23	19	24	19	16	19	16	13	10
9	47	34	26	21	43	31	24	19	27	21	17	22	18	14	18	14	12	9
10	44	31	24	19	40	29	22	17	25	19	15	20	16	13	17	13	10	8

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

	0°	90°	180°
0°	8160	8160	8160
5°	8835	8334	7154
10°	9697	8249	6296
15°	10477	8226	5312
20°	11300	8153	4323
25°	12149	8060	3342
30°	13084	7941	2345
35°	14007	7743	1392
40°	15117	7582	698
45°	16327	7357	252
50°	18127	7151	333
55°	20873	6896	497
60°	25085	6485	855
65°	31027	6071	1518
70°	39902	5626	2084
75°	54518	5094	2616
80°	82900	4514	3283
85°	166804	4906	5315



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	21.7	1.2
10°-20°	61.9	3.3
20°-30°	92.9	5.0
30°-40°	111.5	6.0
40°-50°	119.6	6.4
50°-60°	124.6	6.7
60°-70°	131.4	7.0
70°-80°	136.7	7.3
80°-90°	137.1	7.4
90°-100°	136.2	7.3
100°-110°	135.5	7.3
110°-120°	131.2	7.0
120°-130°	124.6	6.7
130°-140°	119.4	6.4
140°-150°	109.9	5.9
150°-160°	90.2	4.8
160°-170°	59.3	3.2
170°-180°	20.6	1.1
0°-30°	176.5	9.5
0°-40°	288.0	15.4
0°-60°	532.2	28.5
0°-90°	937.3	50.3
90°-120°	402.9	21.6
90°-150°	756.8	40.6
90°-180°	927.0	49.7
0°-180°	1864.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	229	229	229	229	229	
5°	247	246	233	214	200	24
15°	284	269	223	171	144	81
25°	309	282	205	123	85	143
35°	322	284	178	72	32	202
45°	324	276	146	30	5	252
55°	336	260	111	10	8	303
65°	368	251	72	12	18	366
75°	396	255	37	18	19	418
85°	408	259	12	14	13	332
90°	409	260	10	13	12	224
95°	406	259	13	12	12	331
105°	391	255	38	16	16	412
115°	361	252	73	12	18	359
125°	333	263	110	10	8	300
135°	325	278	145	28	5	252
145°	320	283	176	69	30	200
155°	301	276	200	117	81	139
165°	272	259	214	163	138	77
175°	232	233	221	203	191	23
180°	217	217	217	217	217	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	229	229	229	229	229	229	229	229	229
2.5°	236	236	238	236	233	227	222	216	212
5°	247	247	246	240	233	222	214	204	200
7.5°	258	257	252	243	230	216	204	193	187
10°	268	265	259	246	228	210	194	180	174
12.5°	276	273	264	248	226	203	183	166	159
15°	284	280	269	249	223	195	171	153	144
17.5°	291	287	273	250	219	187	159	139	129
20°	298	293	276	250	215	179	148	124	114
22.5°	304	298	279	249	210	170	135	109	100
25°	309	302	282	248	205	161	123	95	85
27.5°	314	306	283	246	199	151	110	81	71
30°	318	309	284	244	193	142	97	68	57
32.5°	321	312	284	240	186	131	85	55	45
35°	322	312	284	237	178	120	72	43	32
37.5°	324	314	282	233	171	109	61	31	22
40°	325	314	281	228	163	98	49	22	15
42.5°	324	313	279	223	155	87	39	16	10
45°	324	312	276	218	146	76	30	11	5
47.5°	326	311	273	213	138	65	22	8	5
50°	327	311	269	207	129	56	17	8	6
52.5°	331	312	265	201	120	47	14	8	6
55°	336	314	260	194	111	38	10	8	8
57.5°	344	317	256	186	101	31	10	9	9
60°	352	324	253	178	91	25	11	11	12
62.5°	360	330	251	170	82	19	11	14	15
65°	368	336	251	161	72	16	12	17	18
67.5°	377	344	251	151	64	13	13	19	20
70°	383	349	252	142	54	10	15	20	20
72.5°	390	355	254	135	45	10	17	21	20
75°	396	360	255	127	37	11	18	20	19
77.5°	400	364	257	121	29	11	18	18	17
80°	404	367	258	116	22	12	17	17	16
82.5°	406	369	259	113	17	13	16	14	14
85°	408	371	259	110	12	13	14	13	13
87.5°	409	371	260	109	10	12	14	12	12
90°	409	372	260	108	10	11	13	12	12
92.5°	408	371	260	109	10	12	12	11	12
95°	406	369	259	111	13	12	12	11	12
97.5°	404	367	258	114	17	12	13	12	12
100°	401	364	257	119	23	12	14	14	13
102.5°	395	360	256	124	30	11	15	15	14
105°	391	355	255	131	38	10	16	17	16
107.5°	384	350	253	138	46	10	16	19	17
110°	377	344	253	147	55	10	16	20	19



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	371	338	252	155	64	12	14	19	19
115°	361	332	252	164	73	15	12	18	18
117.5°	354	326	254	173	82	18	11	16	17
120°	346	320	256	180	92	23	11	13	14
122.5°	339	316	259	188	101	29	10	10	11
125°	333	314	263	195	110	36	10	9	8
127.5°	329	313	268	201	119	45	13	8	7
130°	327	313	272	207	127	54	16	7	6
132.5°	326	314	276	213	136	64	21	7	5
135°	325	315	278	218	145	74	28	10	5
137.5°	325	315	280	223	153	85	37	14	9
140°	324	314	281	226	161	96	46	20	13
142.5°	322	313	282	230	168	107	57	29	20
145°	320	312	283	233	176	117	69	40	30
147.5°	316	309	282	236	183	128	81	51	42
150°	311	305	280	237	189	138	93	63	53
152.5°	307	301	278	239	194	148	105	76	67
155°	301	296	276	240	200	156	117	90	81
157.5°	294	291	272	240	204	165	130	104	95
160°	287	284	268	240	208	173	141	118	110
162.5°	280	277	263	239	211	181	152	132	123
165°	272	270	259	238	214	188	163	145	138
167.5°	263	262	253	236	217	195	173	158	152
170°	252	253	247	233	218	201	183	171	165
172.5°	243	244	240	231	220	207	193	182	178
175°	232	233	233	227	221	212	203	194	191
177.5°	221	224	225	223	221	218	211	206	202
180°	217	217	217	217	217	217	217	217	217

(END OF REPORT)