

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: 766691

Luminaire Tested: **QDEC-28xxxx**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: 766691  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: QDEC-28xxxx  
Description: FAIL-SAFE CLEAR 9 x 9  
Light Source: #036 - PHILIPS PL-C 15mm/28W/27 1600 LUMENS  
TOTAL INPUT WATTS = 35.25 AT 120 VOLTS  
Ballast/Driver: ONE ADVANCE #H1Q28

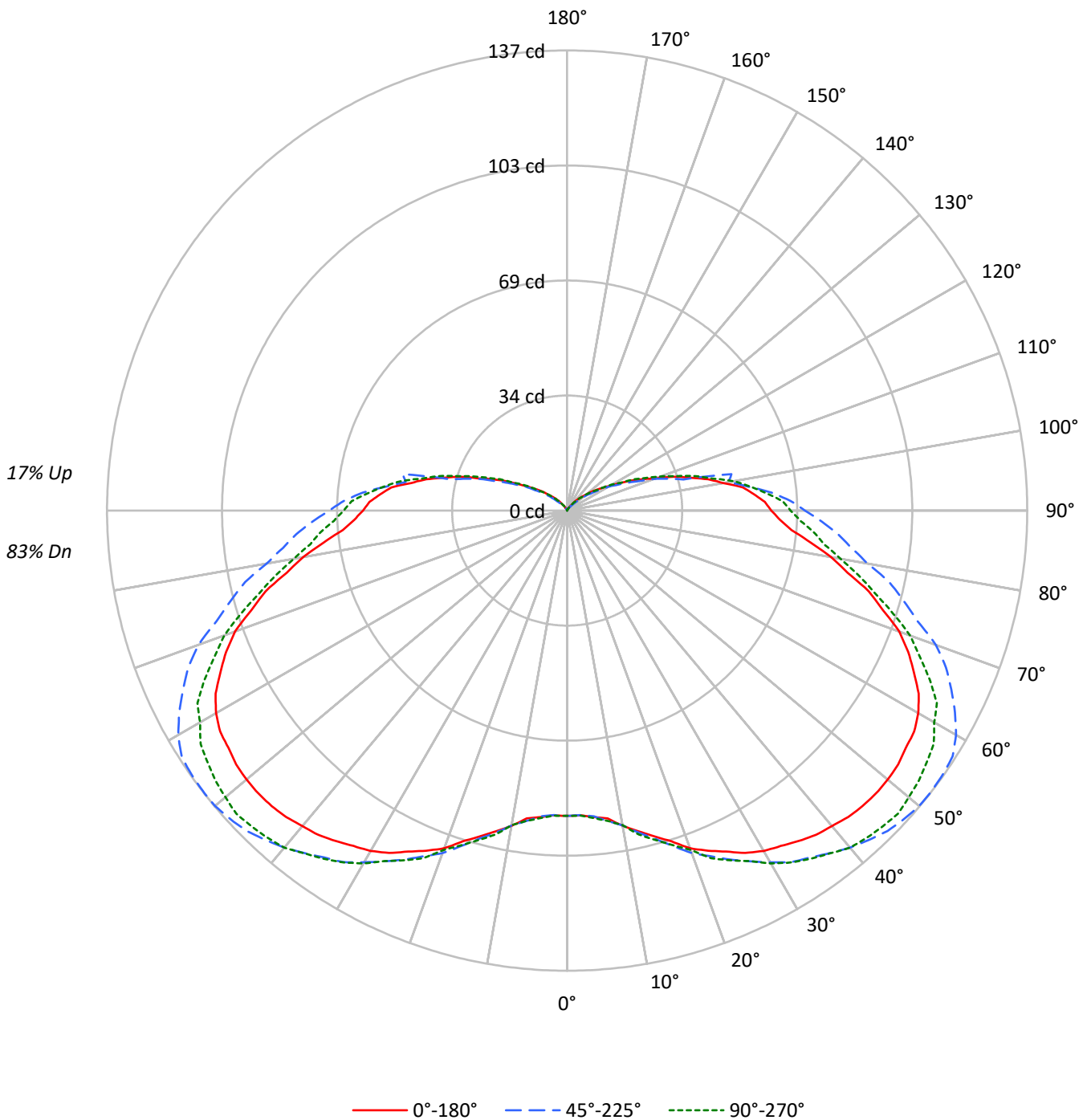
**Summary**

Lumens per Lamp: 1600 (1 lamp)  
Luminaire Lumens: 845.4 lumens  
Efficiency: 52.8%  
Efficacy: 30.2 lumens/watt  
Spacing Criteria (0/90/45): 1.95 / 2.05 / 2.14  
Luminous Opening: Point Source (0' x 0' x 0')  
CIE Type: Semi-Direct

Input Watts (W): 28  
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			
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	61	61	61	61	58	58	58	58	54	54	54	50	50	50	46	46	46	44		
1	53	49	46	43	50	47	44	41	43	41	38	39	37	36	36	34	33	31		
2	47	41	36	33	44	39	35	31	36	32	29	33	30	27	30	27	25	24		
3	42	35	30	26	40	33	29	25	31	26	23	28	24	22	25	23	20	18		
4	38	30	25	21	36	29	24	20	26	22	19	24	21	18	22	19	16	15		
5	34	27	21	17	33	25	20	17	23	19	16	21	18	15	19	16	14	12		
6	32	24	18	14	30	23	18	14	21	16	13	19	15	12	17	14	12	10		
7	29	21	16	12	27	20	15	12	19	14	11	17	13	11	16	12	10	9		
8	27	19	14	11	25	18	14	10	17	13	10	15	12	9	14	11	9	7		
9	25	17	13	9	24	17	12	9	15	11	9	14	11	8	13	10	8	7		
10	23	16	11	8	22	15	11	8	14	10	8	13	10	7	12	9	7	6		

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

	0°	45°	90°
0°	Luminaire represents a point source (luminous area is zero).		
5°	No luminance values can be calculated.		
10°			
15°			
20°			
25°			
30°			
35°			
40°			
45°			
50°			
55°			
60°			
65°			
70°			
75°			
80°			
85°			



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	8.8	1.0	0.6	0°	91	91	91	91	91	
10°-20°	28.9	3.4	1.8	5°	92	91	91	84	92	9
20°-30°	52.9	6.3	3.3	15°	100	102	101	102	102	29
30°-40°	78.3	9.3	4.9	25°	112	113	115	116	115	52
40°-50°	101.6	12.0	6.3	35°	120	122	126	127	126	75
50°-60°	117.7	13.9	7.4	45°	124	128	135	135	133	96
60°-70°	121.3	14.4	7.6	55°	123	128	137	134	131	110
70°-80°	107.8	12.8	6.7	65°	114	122	126	127	119	113
80°-90°	86.6	10.2	5.4	75°	93	104	104	108	95	98
90°-100°	66.6	7.9	4.2	85°	67	80	81	85	74	58
100°-110°	40.9	4.8	2.6	90°	61	71	71	76	66	33
110°-120°	20.2	2.4	1.3	95°	56	63	61	64	60	44
120°-130°	9.0	1.1	0.6	105°	38	38	36	38	40	40
130°-140°	3.5	0.4	0.2	115°	21	20	20	19	22	21
140°-150°	1.0	0.1	0.1	125°	11	10	9	9	10	10
150°-160°	0.2	0.0	0.0	135°	5	4	3	4	5	4
160°-170°	0.0	0.0	0.0	145°	2	2	1	2	2	1
170°-180°	0.0	0.0	0.0	155°	1	1	0	1	1	0
0°-30°	90.6	10.7	5.7	165°	0	0	0	0	0	0
0°-40°	168.9	20.0	10.6	175°	0	0	0	0	0	0
0°-60°	388.2	45.9	24.3	180°	0	0	0	0	0	0
0°-90°	704.0	83.3	44.0							
90°-120°	127.7	15.1	8.0							
90°-150°	141.2	16.7	8.8							
90°-180°	141.0	16.7	8.8							
0°-180°	845.4	100.0	52.8							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	90.9	90.9	90.9	90.9	90.9
2.5°	90.8	90.8	90.7	90.8	90.9
5°	91.6	91.2	91.4	83.7	91.9
7.5°	92.4	93.3	93.2	93.2	93.2
10°	95.3	95.1	95.2	95.6	95.1
12.5°	97.8	97.5	98.2	98.2	98.8
15°	100.4	101.5	101.1	102.2	101.5
17.5°	103.2	104.2	104.7	105.2	104.4
20°	107.0	106.9	108.5	108.7	107.5
22.5°	109.6	109.4	111.4	111.7	112.0
25°	112.0	112.9	114.6	115.9	114.9
27.5°	114.9	115.1	117.7	118.7	117.6
30°	117.0	117.2	120.9	121.7	121.3
32.5°	118.4	119.5	124.1	124.2	124.2
35°	120.1	121.7	126.1	127.4	126.5
37.5°	121.7	123.5	128.5	129.6	128.6
40°	122.6	125.0	131.0	131.4	131.0
42.5°	123.8	126.5	133.0	133.7	132.1
45°	124.4	127.7	134.9	134.8	132.9
47.5°	124.7	128.4	136.0	135.3	133.6
50°	124.6	128.7	136.8	135.4	132.8
52.5°	124.2	128.7	136.9	135.1	132.0
55°	123.1	128.0	136.7	134.4	130.7
57.5°	122.5	127.5	136.1	133.6	129.4
60°	120.7	125.7	133.7	130.6	126.2
62.5°	118.0	124.5	130.2	129.5	124.1
65°	113.9	121.7	126.2	126.8	119.1
67.5°	109.9	118.2	122.1	123.8	113.6
70°	105.2	114.6	116.8	118.0	108.6
72.5°	98.6	108.6	109.4	113.2	101.7
75°	93.0	103.8	103.7	108.1	94.8
77.5°	85.5	97.9	98.2	101.0	88.8
80°	79.8	91.3	90.8	95.0	82.6
82.5°	73.2	85.6	85.4	90.4	77.2
85°	67.1	80.2	81.0	85.1	73.7
87.5°	63.4	75.5	75.9	79.7	69.5
90°	60.8	70.6	70.8	75.6	66.5
92.5°	58.9	66.9	66.5	71.5	64.2
95°	55.8	62.9	61.1	64.0	59.5
97.5°	52.8	57.2	54.4	58.2	54.9
100°	47.2	49.7	48.8	51.9	50.4
102.5°	43.0	44.2	50.1	43.0	44.1
105°	37.8	38.2	35.8	37.7	39.6
107.5°	33.5	33.1	31.5	32.8	34.1
110°	28.0	27.6	27.6	27.2	29.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	24.3	23.3	22.8	22.8	25.4
115°	21.1	19.6	19.5	19.4	22.0
117.5°	17.7	16.1	16.4	16.3	17.9
120°	14.8	13.8	14.2	13.2	15.6
122.5°	12.7	11.4	11.3	11.3	13.0
125°	10.9	9.7	9.3	9.4	10.5
127.5°	9.3	8.1	7.6	7.9	8.9
130°	7.4	6.9	6.0	6.4	7.6
132.5°	6.3	5.5	4.3	5.3	6.0
135°	5.3	4.5	3.3	4.3	5.0
137.5°	4.3	3.5	2.5	3.5	3.9
140°	3.5	2.9	1.9	2.7	3.2
142.5°	2.4	2.0	1.4	2.0	2.4
145°	1.9	1.5	1.4	1.6	1.9
147.5°	1.1	1.0	0.9	1.0	1.0
150°	0.8	0.7	0.7	0.7	0.6
152.5°	0.8	0.6	0.6	0.6	0.6
155°	0.6	0.6	0.5	0.6	0.6
157.5°	0.3	0.4	0.4	0.4	0.5
160°	0.3	0.4	0.2	0.3	0.3
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)