

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: 01258

Luminaire Tested: **TTBW9**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: 01258  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: TTBW9  
Description: FAIL-SAFE CAST ALUMINUM HOUSING  
FORMED WHITE ENAMEL REFLECTOR  
WHITE VERTICAL PLASTIC ENCLOSURE  
Light Source: 9 WATT F9TT/35K RATED 900 LUMENS  
Ballast/Driver: -

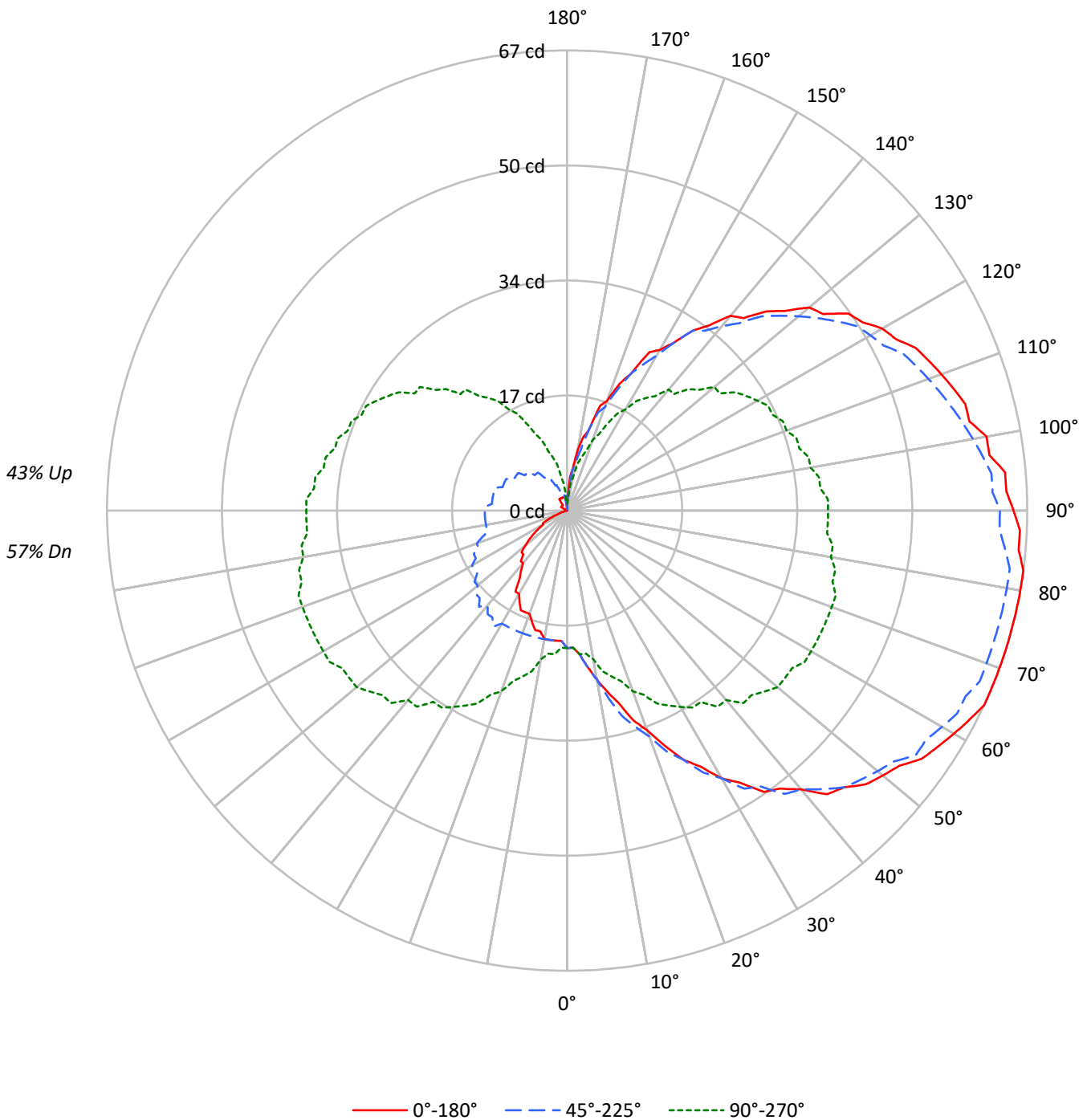
**Summary**

Lumens per Lamp: 600 (1 lamp)  
Luminaire Lumens: 391.7 lumens  
Efficiency: 65.3%  
Efficacy: 28.0 lumens/watt  
Spacing Criteria (0/90/45): 2.25 / 2.47 / 2.48  
Luminous Opening: Rectangular w/ Sides (W: 0.44' x L: 0.35' x H: 0.77')  
CIE Type: General Diffuse

Input Watts (W): 14  
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	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	71	71	71	71	66	66	66	66	57	57	57	49	49	49	41	41	41	37
1	62	57	53	50	57	53	50	46	45	42	40	38	36	34	31	29	28	25
2	55	48	43	38	50	44	40	35	38	34	30	31	28	26	25	23	21	18
3	49	41	35	30	45	38	33	28	32	28	24	26	23	20	21	19	16	14
4	44	36	29	25	41	33	27	23	28	23	20	23	19	16	18	16	13	11
5	40	31	25	20	37	29	23	19	24	20	16	20	17	14	16	13	11	9
6	37	28	22	17	34	26	20	16	22	17	14	18	14	11	14	12	9	7
7	34	25	19	15	31	23	18	14	20	15	12	16	13	10	13	10	8	6
8	32	22	17	13	29	21	16	12	18	13	10	15	11	9	12	9	7	5
9	29	20	15	11	27	19	14	10	16	12	9	13	10	7	11	8	6	5
10	27	19	13	10	25	17	12	9	15	11	8	12	9	7	10	7	5	4

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

	0°	90°	180°
0°	1398	1398	1398
5°	1236	1278	1118
10°	1278	1193	972
15°	1320	1232	819
20°	1404	1272	661
25°	1523	1316	609
30°	1600	1325	498
35°	1679	1304	403
40°	1699	1331	321
45°	1761	1366	278
50°	1801	1410	240
55°	1854	1393	177
60°	1889	1422	116
65°	1938	1427	87
70°	1944	1443	29
75°	1964	1434	0
80°	2001	1437	0
85°	2024	1451	0



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	45°	90°	135°	180°	Flux
0°-10°	2.0	0.5	0.3	0°	20	20	20	20	20	
10°-20°	7.0	1.8	1.2	5°	21	21	21	19	19	2
20°-30°	13.7	3.5	2.3	15°	29	31	25	19	18	8
30°-40°	21.1	5.4	3.5	25°	40	40	31	19	16	18
40°-50°	28.2	7.2	4.7	35°	50	49	34	19	12	31
50°-60°	34.2	8.7	5.7	45°	57	57	38	18	9	44
60°-70°	38.1	9.7	6.4	55°	63	62	40	16	6	56
70°-80°	39.9	10.2	6.7	65°	67	64	41	15	3	66
80°-90°	40.0	10.2	6.7	75°	67	65	40	12	0	71
90°-100°	38.4	9.8	6.4	85°	66	64	38	12	0	54
100°-110°	35.3	9.0	5.9	90°	65	63	38	12	0	36
110°-120°	30.8	7.9	5.1	95°	64	62	37	11	0	51
120°-130°	24.9	6.4	4.1	105°	60	58	35	11	0	63
130°-140°	18.0	4.6	3.0	115°	56	54	33	10	0	55
140°-150°	11.5	2.9	1.9	125°	50	48	30	9	1	44
150°-160°	6.0	1.5	1.0	135°	41	40	25	8	1	32
160°-170°	2.2	0.6	0.4	145°	32	32	20	6	2	20
170°-180°	0.3	0.1	0.0	155°	22	22	14	4	2	11
0°-30°	22.8	5.8	3.8	165°	12	12	8	3	2	4
0°-40°	43.9	11.2	7.3	175°	5	3	2	1	0	1
0°-60°	106.3	27.1	17.7	180°	1	1	1	1	1	
0°-90°	224.3	57.3	37.4							
90°-120°	104.5	26.7	17.4							
90°-150°	158.9	40.6	26.5							
90°-180°	167.0	42.6	27.8							
0°-180°	391.7	100.0	65.3							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	20	20	20	20	20	20	20	20	20
2.5°	20	21	20	20	20	20	19	19	19
5°	21	21	21	21	21	20	19	19	19
7.5°	23	24	23	23	21	20	19	19	19
10°	25	26	25	24	22	21	19	19	19
12.5°	27	28	28	26	24	22	19	18	18
15°	29	31	31	28	25	22	19	18	18
17.5°	32	33	33	30	26	23	19	17	17
20°	34	36	35	32	28	24	19	17	16
22.5°	37	39	38	34	29	25	19	16	16
25°	40	41	40	36	31	25	19	16	16
27.5°	42	43	43	38	32	26	19	16	15
30°	45	46	45	40	33	27	19	15	14
32.5°	47	49	48	42	34	28	20	15	14
35°	50	50	49	43	34	28	19	13	12
37.5°	51	52	52	45	36	28	19	12	11
40°	53	53	53	46	36	28	18	10	10
42.5°	56	55	55	48	38	29	19	11	10
45°	57	57	57	49	38	29	18	10	9
47.5°	59	59	58	50	39	30	18	9	9
50°	60	60	59	51	40	30	17	9	8
52.5°	61	62	60	53	40	29	17	8	7
55°	63	62	62	53	40	31	16	7	6
57.5°	64	64	62	54	41	30	16	6	5
60°	65	64	63	55	41	30	16	5	4
62.5°	66	65	64	55	41	29	15	4	4
65°	67	65	64	55	41	29	15	3	3
67.5°	67	65	65	56	41	29	14	3	2
70°	67	65	65	55	41	29	14	2	1
72.5°	67	66	65	56	41	29	13	2	1
75°	67	66	65	55	40	28	12	1	0
77.5°	67	65	65	55	40	28	12	1	0
80°	67	65	65	55	39	28	12	0	0
82.5°	67	65	65	54	39	28	12	0	0
85°	66	64	64	54	38	28	12	0	0
87.5°	66	64	63	53	38	27	12	0	0
90°	65	63	63	53	38	27	12	0	0
92.5°	64	62	62	53	38	27	12	0	0
95°	64	61	62	52	37	26	11	0	0
97.5°	62	60	61	52	37	26	11	0	0
100°	62	60	60	51	36	26	11	0	0
102.5°	60	59	59	50	36	26	11	0	0
105°	60	58	58	50	35	26	11	0	0
107.5°	59	57	57	49	35	25	11	0	0
110°	58	56	56	48	34	24	10	0	0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	57	55	55	47	34	24	10	0	0
115°	56	54	54	46	33	23	10	0	0
117.5°	54	52	52	45	33	23	10	1	0
120°	53	51	51	44	32	22	9	1	1
122.5°	51	50	50	42	31	21	9	1	1
125°	50	48	48	40	30	21	9	1	1
127.5°	47	46	46	39	28	20	9	1	1
130°	46	44	44	37	28	19	8	1	1
132.5°	43	42	42	36	26	19	8	1	1
135°	41	40	40	34	25	17	8	1	1
137.5°	38	38	37	31	23	16	7	1	1
140°	37	35	35	30	23	16	7	1	1
142.5°	34	34	33	28	21	15	7	1	1
145°	32	31	32	26	20	14	6	1	2
147.5°	29	29	29	24	19	13	5	1	2
150°	27	27	26	22	17	12	5	1	2
152.5°	26	24	24	20	16	11	5	1	2
155°	22	22	22	18	14	10	4	2	2
157.5°	20	19	19	16	12	8	4	2	2
160°	17	17	16	14	11	8	3	2	2
162.5°	16	14	15	12	9	6	3	2	2
165°	12	12	12	10	8	5	3	2	2
167.5°	11	10	9	8	7	4	3	2	2
170°	9	7	7	6	5	3	2	2	2
172.5°	6	6	6	4	4	2	2	1	1
175°	5	4	3	3	2	1	1	0	0
177.5°	2	2	2	1	1	0	0	0	0
180°	1	1	1	1	1	1	1	1	1

(END OF REPORT)