

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO COMMERCIAL

Report Number: P837614

Luminaire Tested: HCSQ450D010-HM44560927-41SQH

Issue Date: 5/17/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P837614  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-2)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560927-41SQH  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: -

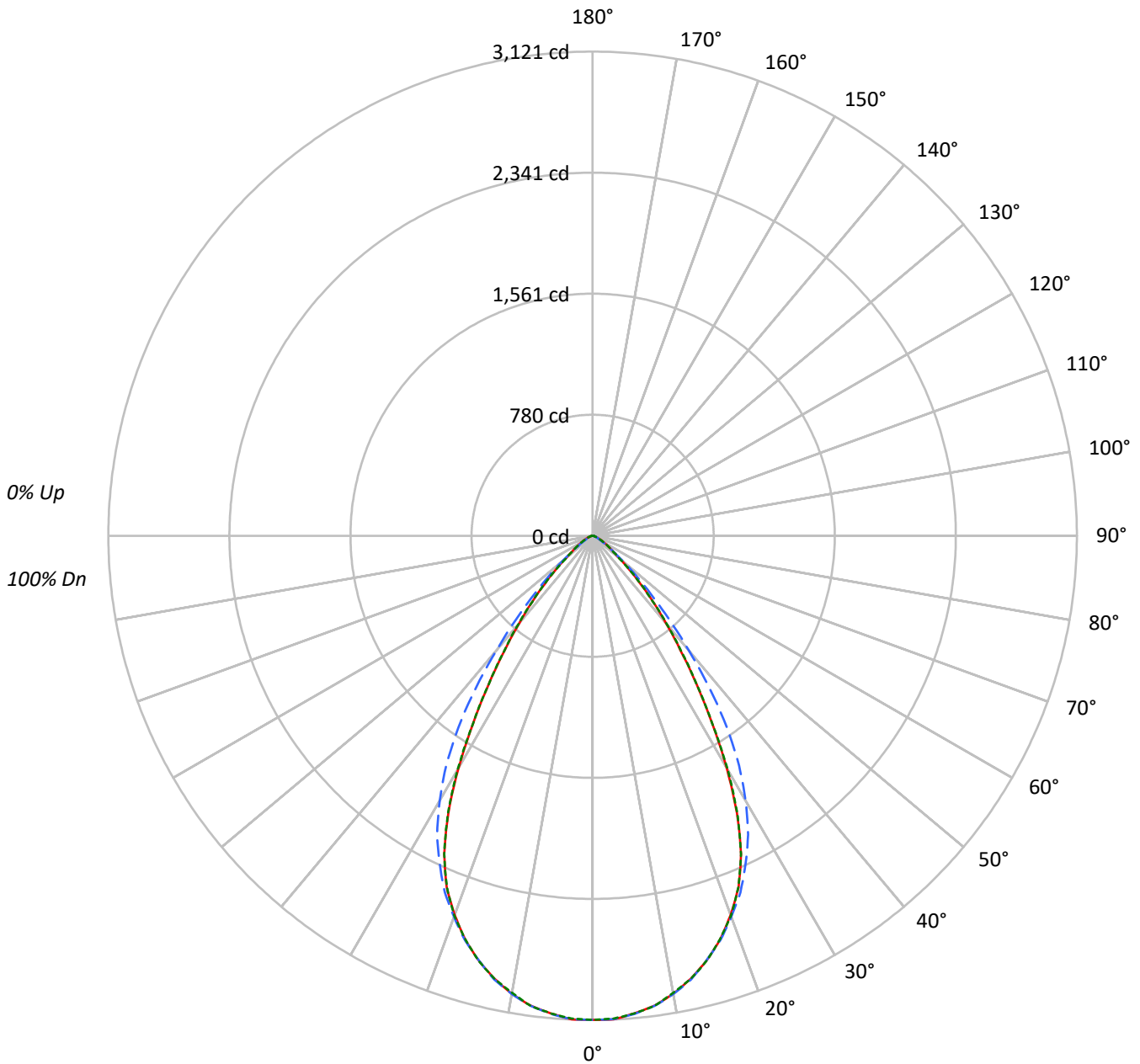
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3508.1 lumens  
Efficiency: N/A  
Efficacy: 70.6 lumens/watt  
Spacing Criteria (0/90/45): 0.98 / 0.98 / 1.01  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 49.7  
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: 24 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									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	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100			100																
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92			92																
2	107	101	97	93	104	100	95	92	96	93	90	93	90	88	90	88	86	85			85																
3	101	93	88	84	98	92	87	83	89	85	82	87	83	80	85	82	79	77			77																
4	95	87	80	76	93	85	80	75	83	78	74	81	77	74	79	76	73	71			71																
5	89	80	74	69	88	79	73	69	77	72	68	76	71	68	74	70	67	65			65																
6	84	75	68	63	83	74	68	63	72	67	63	71	66	62	69	65	62	60			60																
7	80	70	63	59	78	69	63	58	68	62	58	66	61	58	65	61	57	56			56																
8	75	65	59	54	74	65	58	54	63	58	54	62	57	54	61	57	53	52			52																
9	72	61	55	50	70	61	54	50	60	54	50	59	54	50	58	53	50	48			48																
10	68	57	51	47	67	57	51	47	56	51	47	55	50	47	55	50	46	45			45																

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

	0°	45°	90°
0°	302329	302329	302329
5°	300489	300858	300489
10°	294854	295051	294283
15°	284380	284190	284571
20°	268072	269464	268670
25°	241893	249311	241893
30°	193197	220581	194707
35°	137918	178494	138143
40°	93114	121391	94581
45°	59158	71830	59418
50°	33699	38341	32539
55°	22142	18562	21805
60°	15306	10831	14938
65°	10613	7954	10613
70°	7648	6005	7648
75°	5053	5053	5053
80°	3236	4296	4296
85°	4335	4335	4335

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 71830 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	292.4	8.3
10°-20°	795.0	22.7
20°-30°	1040.9	29.7
30°-40°	818.1	23.3
40°-50°	382.1	10.9
50°-60°	118.4	3.4
60°-70°	42.3	1.2
70°-80°	14.9	0.4
80°-90°	4.1	0.1
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°	2128.2	60.7
0°-40°	2946.3	84.0
0°-60°	3446.8	98.3
0°-90°	3508.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3508.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3121	3121	3121	3121	3121	
5°	3090	3092	3094	3098	3090	292
15°	2836	2836	2834	2836	2837	794
25°	2263	2294	2332	2296	2263	1018
35°	1166	1272	1509	1288	1168	735
45°	432	484	524	474	434	344
55°	131	123	110	121	129	123
65°	46	42	35	40	46	48
75°	14	14	14	14	14	15
85°	4	4	4	4	4	3
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3120.8	3120.8	3120.8	3120.8	3120.8
2.5°	3120.8	3116.9	3118.9	3115.0	3115.0
5°	3090.0	3091.9	3093.8	3097.7	3090.0
7.5°	3055.3	3059.1	3057.2	3057.2	3057.2
10°	2997.4	2999.4	2999.4	2999.4	2991.6
12.5°	2924.2	2928.0	2930.0	2924.2	2924.2
15°	2835.5	2835.5	2833.6	2835.5	2837.4
17.5°	2729.5	2735.3	2735.3	2729.5	2727.6
20°	2600.3	2610.0	2613.8	2606.1	2606.1
22.5°	2455.8	2465.4	2488.5	2469.3	2453.8
25°	2263.0	2293.9	2332.4	2295.8	2263.0
27.5°	2014.3	2081.8	2170.5	2093.4	2020.1
30°	1727.1	1837.0	1971.9	1842.8	1740.6
32.5°	1434.1	1557.5	1756.0	1567.1	1434.1
35°	1166.2	1272.2	1509.3	1287.6	1168.1
37.5°	927.2	1029.3	1237.5	1040.9	940.7
40°	736.3	819.2	959.9	817.3	747.9
42.5°	574.4	634.2	726.7	632.3	572.5
45°	431.8	483.8	524.3	474.2	433.7
47.5°	318.1	352.8	375.9	347.0	310.3
50°	223.6	248.7	254.4	242.9	215.9
52.5°	167.7	167.7	169.6	165.8	163.8
55°	131.1	123.4	109.9	121.4	129.1
57.5°	102.2	94.5	77.1	90.6	100.2
60°	79.0	71.3	55.9	69.4	77.1
62.5°	61.7	54.0	44.3	54.0	59.8
65°	46.3	42.4	34.7	40.5	46.3
67.5°	34.7	30.8	27.0	30.8	34.7
70°	27.0	25.1	21.2	23.1	27.0
72.5°	19.3	17.3	17.3	17.3	19.3
75°	13.5	13.5	13.5	13.5	13.5
77.5°	9.6	9.6	9.6	9.6	9.6
80°	5.8	5.8	7.7	7.7	7.7
82.5°	3.9	3.9	5.8	5.8	5.8
85°	3.9	3.9	3.9	3.9	3.9
87.5°	1.9	1.9	1.9	3.9	3.9
90°	0.0	0.0	0.0	0.0	0.0

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Scaled Data Report







— 0°-180°    - - 45°-225°    - - - - 90°-270°

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