

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: P837646

Luminaire Tested: HCSQ455D010-HM44560835-41SQMB

Issue Date: 5/17/2024



**Test Information**

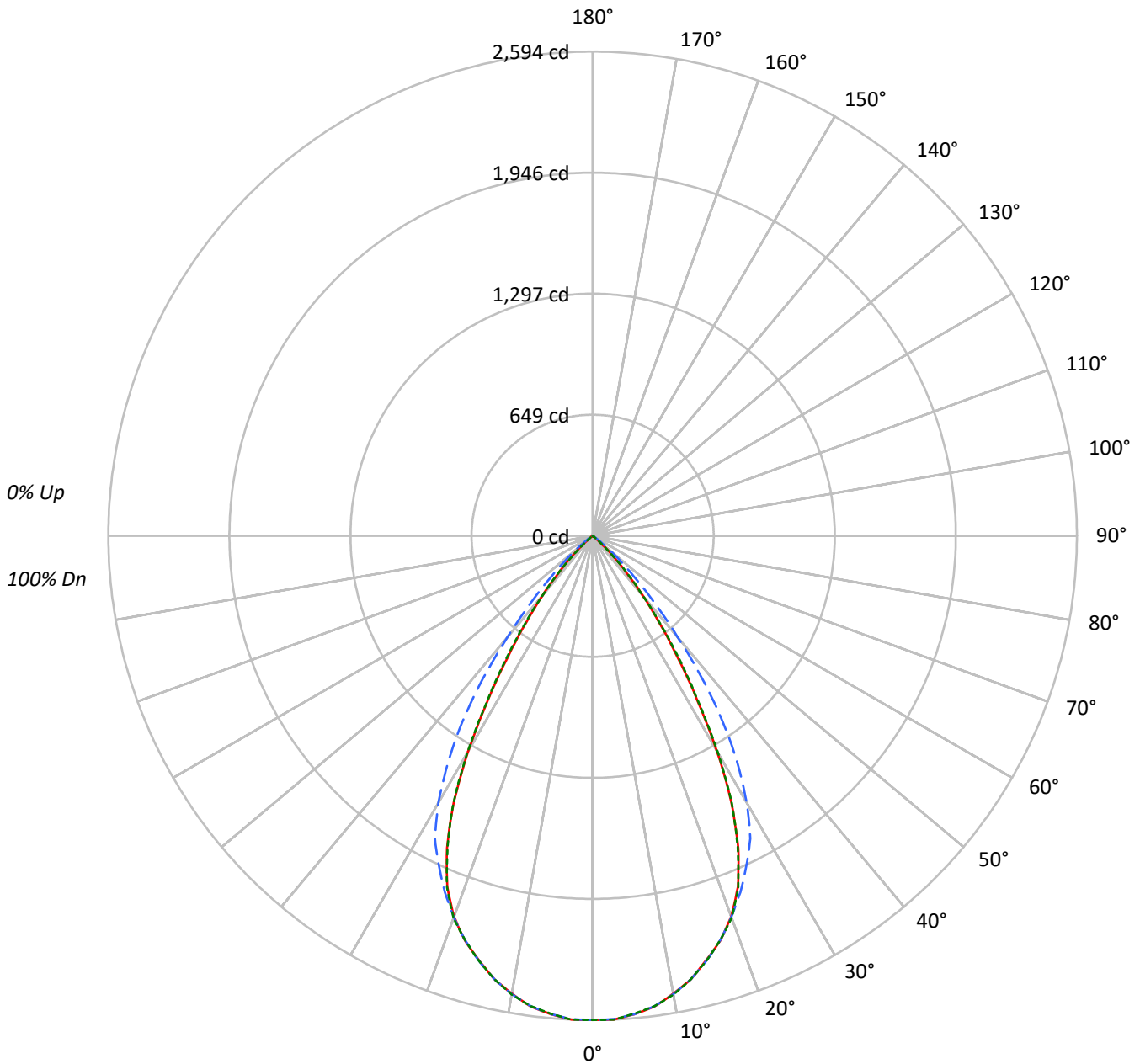
Test Method: LM-79-2019  
Report Number: P837646  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ455D010-HM44560835-41SQMB  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE BLACK TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2591.4 lumens  
Efficiency: N/A  
Efficacy: 48.0 lumens/watt  
Spacing Criteria (0/90/45): 0.96 / 0.96 / 0.99  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 54  
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: 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																			
1	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93																			
2	108	103	99	95	105	101	97	94	98	95	92	95	92	90	92	90	88	87																			
3	102	96	91	87	100	94	90	86	92	88	84	89	86	83	87	84	82	80																			
4	97	89	83	79	95	88	83	79	86	81	78	84	80	77	82	79	76	74																			
5	92	83	77	73	90	82	77	73	80	76	72	79	75	71	77	74	71	69																			
6	87	78	72	67	85	77	71	67	76	70	67	74	70	66	73	69	66	64																			
7	82	73	67	63	81	72	66	62	71	66	62	70	65	62	69	65	61	60																			
8	78	69	62	58	77	68	62	58	67	62	58	66	61	58	65	61	57	56																			
9	74	65	58	54	73	64	58	54	63	58	54	62	57	54	61	57	54	52																			
10	71	61	55	51	70	60	55	51	60	54	51	59	54	51	58	54	50	49																			

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

	0°	45°	90°
0°	251324	251324	251324
5°	250174	250174	249940
10°	245020	245256	245492
15°	236049	236290	236290
20°	223783	224031	224526
25°	197298	208361	196528
30°	148866	184673	150220
35°	93345	143725	96479
40°	52646	89472	52646
45°	22085	45170	21756
50°	1809	17407	2170
55°	811	3665	811
60°	930	465	930
65°	550	550	550
70°	680	680	680
75°	898	898	898
80°	0	1339	1339
85°	0	2668	2668

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 45170 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	243.1	9.4
10°-20°	661.4	25.5
20°-30°	858.1	33.1
30°-40°	610.0	23.5
40°-50°	197.8	7.6
50°-60°	14.3	0.6
60°-70°	2.5	0.1
70°-80°	2.5	0.1
80°-90°	1.7	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°	1762.7	68.0
0°-40°	2372.7	91.6
0°-60°	2584.8	99.7
0°-90°	2591.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2591.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2594	2594	2594	2594	2594	
5°	2573	2575	2573	2573	2570	243
15°	2354	2361	2356	2361	2356	661
25°	1846	1894	1949	1904	1839	826
35°	789	934	1215	943	816	505
45°	161	229	330	233	159	134
55°	5	5	22	5	5	6
65°	2	2	2	2	2	3
75°	2	2	2	2	2	2
85°	0	0	2	2	2	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2594.3	2594.3	2594.3	2594.3	2594.3
2.5°	2594.3	2594.3	2591.9	2591.9	2594.3
5°	2572.6	2575.0	2572.6	2572.6	2570.2
7.5°	2543.7	2543.7	2541.3	2541.3	2541.3
10°	2490.8	2493.2	2493.2	2493.2	2495.6
12.5°	2433.0	2433.0	2433.0	2433.0	2433.0
15°	2353.6	2360.8	2356.0	2360.8	2356.0
17.5°	2274.2	2274.2	2271.8	2276.6	2271.8
20°	2170.7	2170.7	2173.1	2177.9	2177.9
22.5°	2033.5	2057.6	2067.2	2062.4	2038.3
25°	1845.8	1894.0	1949.3	1903.6	1838.6
27.5°	1610.0	1701.4	1829.0	1715.9	1614.8
30°	1330.8	1468.0	1650.9	1472.8	1342.9
32.5°	1042.0	1200.9	1443.9	1212.9	1051.7
35°	789.3	933.7	1215.3	943.4	815.8
37.5°	582.4	714.7	965.0	719.6	599.2
40°	416.3	512.6	707.5	522.2	416.3
42.5°	267.1	363.4	498.2	365.8	279.2
45°	161.2	228.6	329.7	233.4	158.8
47.5°	72.2	130.0	204.6	134.8	72.2
50°	12.0	52.9	115.5	55.4	14.4
52.5°	7.2	9.6	55.4	9.6	7.2
55°	4.8	4.8	21.7	4.8	4.8
57.5°	4.8	4.8	4.8	4.8	4.8
60°	4.8	2.4	2.4	2.4	4.8
62.5°	2.4	2.4	2.4	2.4	2.4
65°	2.4	2.4	2.4	2.4	2.4
67.5°	2.4	2.4	2.4	2.4	2.4
70°	2.4	2.4	2.4	2.4	2.4
72.5°	2.4	2.4	2.4	2.4	2.4
75°	2.4	2.4	2.4	2.4	2.4
77.5°	2.4	2.4	2.4	2.4	2.4
80°	0.0	2.4	2.4	2.4	2.4
82.5°	0.0	2.4	2.4	2.4	2.4
85°	0.0	0.0	2.4	2.4	2.4
87.5°	0.0	0.0	2.4	2.4	2.4
90°	0.0	0.0	0.0	0.0	0.0

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

Scaled Data Report



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Scaled Data Report







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

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