

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: P837606

Luminaire Tested: HCSQ450D010-HM44560835-41SQMB

Issue Date: 5/17/2024

**Test Information**

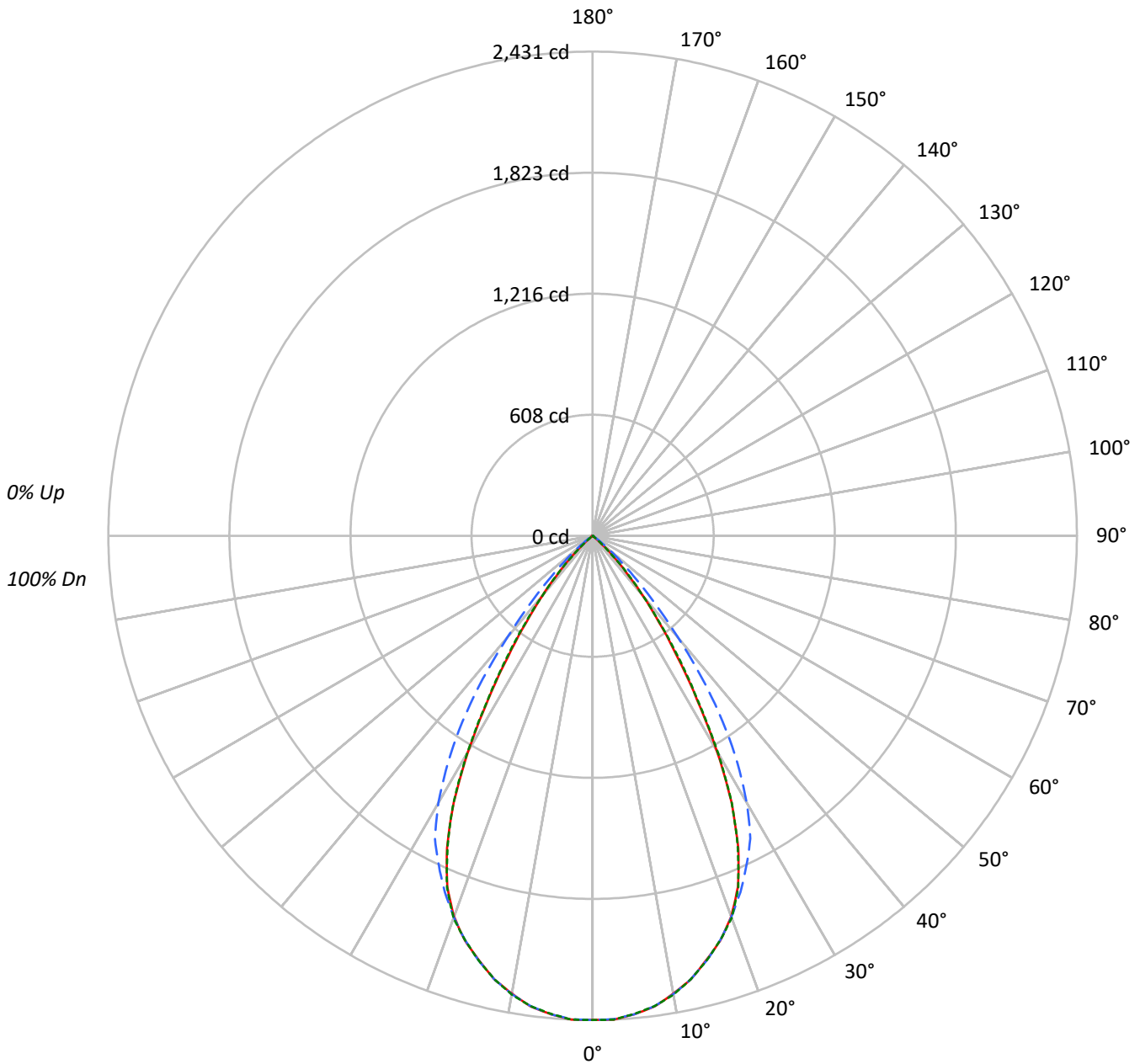
Test Method: LM-79-2019  
Report Number: P837606  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560835-41SQMB  
Description: 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: 2428.8 lumens  
Efficiency: N/A  
Efficacy: 48.9 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): 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

TEST NUMBER: P837606  
CATALOG NUMBER: HCSQ450D010-HM44560835-41SQMB

### Luminous Intensity Polar Plot





TEST NUMBER: P837606

CATALOG NUMBER: HCSQ450D010-HM44560835-41SQMB

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	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	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°	235533	235533	235533
5°	234459	234459	234245
10°	229625	229851	230067
15°	221226	221447	221447
20°	209732	209959	210422
25°	184909	195278	184183
30°	139514	173073	140778
35°	87491	134702	90424
40°	49345	83857	49345
45°	20701	42334	20400
50°	1703	16322	2035
55°	760	3429	760
60°	872	446	872
65°	527	527	527
70°	651	651	651
75°	861	861	861
80°	0	1283	1283
85°	0	2556	2556

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 42334 cd/sqm



TEST NUMBER: P837606

CATALOG NUMBER: HCSQ450D010-HM44560835-41SQMB

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	227.9	9.4
10°-20°	619.9	25.5
20°-30°	804.2	33.1
30°-40°	571.7	23.5
40°-50°	185.4	7.6
50°-60°	13.4	0.6
60°-70°	2.3	0.1
70°-80°	2.4	0.1
80°-90°	1.6	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°	1652.0	68.0
0°-40°	2223.7	91.6
0°-60°	2422.4	99.7
0°-90°	2428.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2428.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2431	2431	2431	2431	2431	
5°	2411	2413	2411	2411	2409	228
15°	2206	2212	2208	2212	2208	619
25°	1730	1775	1827	1784	1723	774
35°	740	875	1139	884	765	473
45°	151	214	309	219	149	126
55°	4	4	20	4	4	5
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	



TEST NUMBER: P837606

CATALOG NUMBER: HCSQ450D010-HM44560835-41SQMB

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2431.3	2431.3	2431.3	2431.3	2431.3
2.5°	2431.3	2431.3	2429.1	2429.1	2431.3
5°	2411.0	2413.3	2411.0	2411.0	2408.8
7.5°	2383.9	2383.9	2381.7	2381.7	2381.7
10°	2334.3	2336.6	2336.6	2336.6	2338.8
12.5°	2280.2	2280.2	2280.2	2280.2	2280.2
15°	2205.8	2212.5	2208.0	2212.5	2208.0
17.5°	2131.3	2131.3	2129.1	2133.6	2129.1
20°	2034.4	2034.4	2036.6	2041.1	2041.1
22.5°	1905.8	1928.4	1937.4	1932.9	1910.3
25°	1729.9	1775.0	1826.9	1784.0	1723.1
27.5°	1508.9	1594.6	1714.1	1608.1	1513.4
30°	1247.2	1375.8	1547.2	1380.3	1258.5
32.5°	976.6	1125.4	1353.2	1136.7	985.6
35°	739.8	875.1	1139.0	884.1	764.6
37.5°	545.8	669.9	904.4	674.4	561.6
40°	390.2	480.4	663.1	489.4	390.2
42.5°	250.3	340.6	466.9	342.8	261.6
45°	151.1	214.3	309.0	218.8	148.9
47.5°	67.7	121.8	191.7	126.3	67.7
50°	11.3	49.6	108.3	51.9	13.5
52.5°	6.8	9.0	51.9	9.0	6.8
55°	4.5	4.5	20.3	4.5	4.5
57.5°	4.5	4.5	4.5	4.5	4.5
60°	4.5	2.3	2.3	2.3	4.5
62.5°	2.3	2.3	2.3	2.3	2.3
65°	2.3	2.3	2.3	2.3	2.3
67.5°	2.3	2.3	2.3	2.3	2.3
70°	2.3	2.3	2.3	2.3	2.3
72.5°	2.3	2.3	2.3	2.3	2.3
75°	2.3	2.3	2.3	2.3	2.3
77.5°	2.3	2.3	2.3	2.3	2.3
80°	0.0	2.3	2.3	2.3	2.3
82.5°	0.0	2.3	2.3	2.3	2.3
85°	0.0	0.0	2.3	2.3	2.3
87.5°	0.0	0.0	2.3	2.3	2.3
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



Report Generated By 670245859 / DESKTOP-T8S5UU9

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

Scaled Data Report







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

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

Scaled Data Report



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

Scaled Data Report



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

Scaled Data Report



(END OF REPORT)