

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: P837601

Luminaire Tested: HCSQ450D010-HM44560830-41SQMB

Issue Date: 5/17/2024



**Test Information**

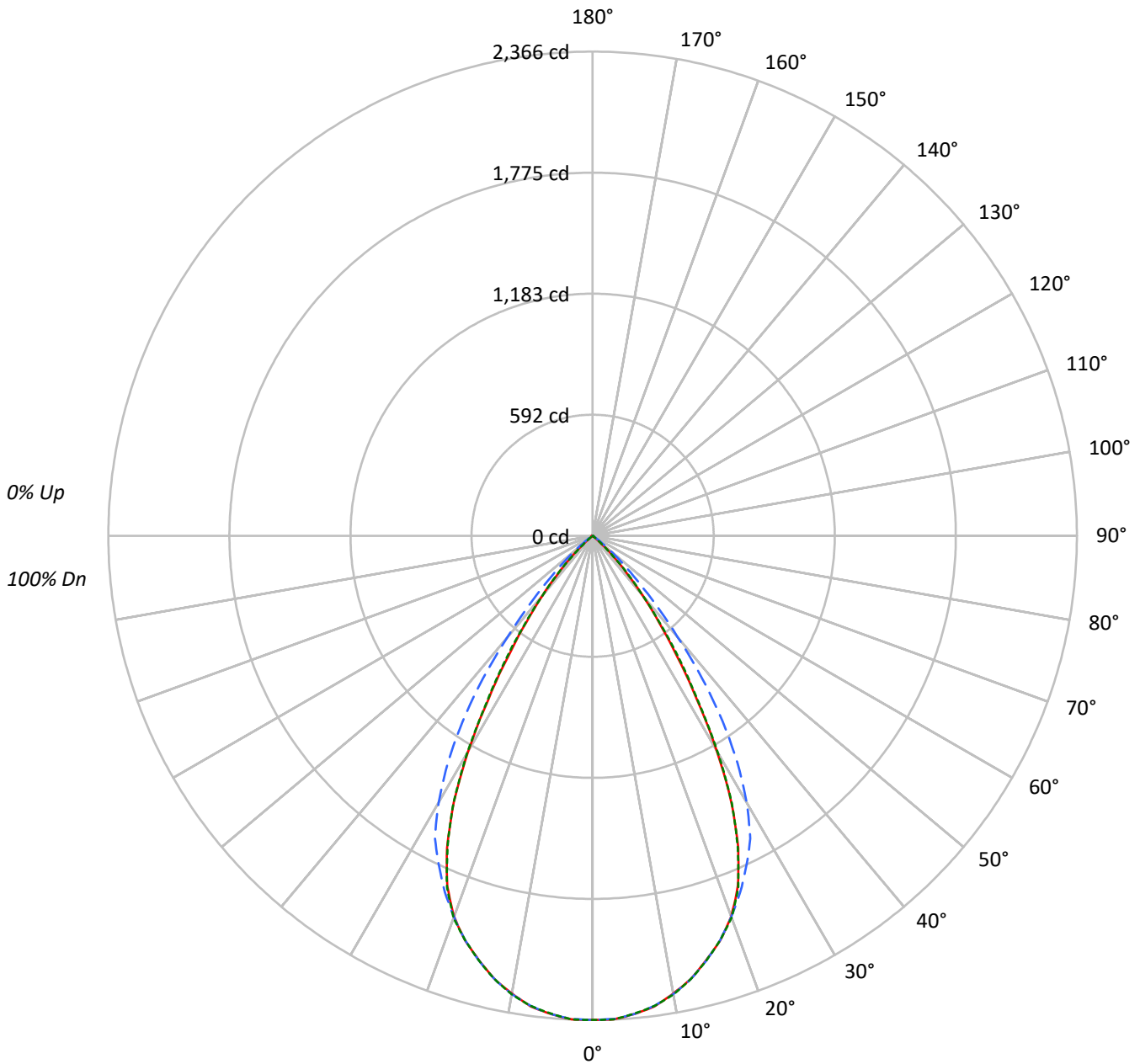
Test Method: LM-79-2019  
Report Number: P837601  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560830-41SQMB  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE BLACK TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2363.2 lumens  
Efficiency: N/A  
Efficacy: 47.5 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: P837601  
CATALOG NUMBER: HCSQ450D010-HM44560830-41SQMB

### Luminous Intensity Polar Plot





TEST NUMBER: P837601  
 CATALOG NUMBER: HCSQ450D010-HM44560830-41SQMB

**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	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	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93					93			
2	108	103	99	95	105	101	97	94	98	95	92	95	92	90	92	90	88	87					87			
3	102	96	91	87	100	94	90	86	92	88	84	89	86	83	87	84	82	80					80			
4	97	89	83	79	95	88	83	79	86	81	78	84	80	77	82	79	76	74					74			
5	92	83	77	73	90	82	77	73	80	76	72	79	75	71	77	74	71	69					69			
6	87	78	72	67	85	77	71	67	76	70	67	74	70	66	73	69	66	64					64			
7	82	73	67	63	81	72	66	62	71	66	62	70	65	62	69	65	61	60					60			
8	78	69	62	58	77	68	62	58	67	62	58	66	61	58	65	61	57	56					56			
9	74	65	58	54	73	64	58	54	63	58	54	62	57	54	61	57	54	52					52			
10	71	61	55	51	70	60	55	51	60	54	51	59	54	51	58	54	50	49					49			

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

	0°	45°	90°
0°	229178	229178	229178
5°	228138	228138	227924
10°	223428	223644	223860
15°	215258	215469	215469
20°	204072	204299	204752
25°	179918	190008	179212
30°	135756	168397	136975
35°	85126	131059	87976
40°	48018	81593	48018
45°	20139	41197	19838
50°	1658	15870	1989
55°	743	3344	743
60°	853	426	853
65°	504	504	504
70°	623	623	623
75°	823	823	823
80°	0	1227	1227
85°	0	2445	2445

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 41197 cd/sqm



TEST NUMBER: P837601

CATALOG NUMBER: HCSQ450D010-HM44560830-41SQMB

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	221.7	9.4
10°-20°	603.2	25.5
20°-30°	782.5	33.1
30°-40°	556.3	23.5
40°-50°	180.4	7.6
50°-60°	13.0	0.6
60°-70°	2.2	0.1
70°-80°	2.3	0.1
80°-90°	1.5	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°	1607.4	68.0
0°-40°	2163.7	91.6
0°-60°	2357.1	99.7
0°-90°	2363.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2363.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2366	2366	2366	2366	2366	
5°	2346	2348	2346	2346	2344	222
15°	2146	2153	2148	2153	2148	603
25°	1683	1727	1778	1736	1677	754
35°	720	852	1108	860	744	461
45°	147	208	301	213	145	122
55°	4	4	20	4	4	5
65°	2	2	2	2	2	2
75°	2	2	2	2	2	2
85°	0	0	2	2	2	0
90°	0	0	0	0	0	



TEST NUMBER: P837601

CATALOG NUMBER: HCSQ450D010-HM44560830-41SQMB

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2365.7	2365.7	2365.7	2365.7	2365.7
2.5°	2365.7	2365.7	2363.5	2363.5	2365.7
5°	2346.0	2348.1	2346.0	2346.0	2343.8
7.5°	2319.6	2319.6	2317.4	2317.4	2317.4
10°	2271.3	2273.5	2273.5	2273.5	2275.7
12.5°	2218.7	2218.7	2218.7	2218.7	2218.7
15°	2146.3	2152.8	2148.4	2152.8	2148.4
17.5°	2073.8	2073.8	2071.6	2076.0	2071.6
20°	1979.5	1979.5	1981.7	1986.1	1986.1
22.5°	1854.4	1876.3	1885.1	1880.7	1858.8
25°	1683.2	1727.1	1777.6	1735.9	1676.6
27.5°	1468.1	1551.5	1667.8	1564.7	1472.5
30°	1213.6	1338.7	1505.4	1343.1	1224.5
32.5°	950.2	1095.1	1316.7	1106.0	959.0
35°	719.8	851.5	1108.2	860.3	743.9
37.5°	531.1	651.8	880.0	656.2	546.4
40°	379.7	467.4	645.2	476.2	379.7
42.5°	243.6	331.4	454.3	333.6	254.6
45°	147.0	208.5	300.7	212.9	144.8
47.5°	65.8	118.5	186.5	122.9	65.8
50°	11.0	48.3	105.3	50.5	13.2
52.5°	6.6	8.8	50.5	8.8	6.6
55°	4.4	4.4	19.8	4.4	4.4
57.5°	4.4	4.4	4.4	4.4	4.4
60°	4.4	2.2	2.2	2.2	4.4
62.5°	2.2	2.2	2.2	2.2	2.2
65°	2.2	2.2	2.2	2.2	2.2
67.5°	2.2	2.2	2.2	2.2	2.2
70°	2.2	2.2	2.2	2.2	2.2
72.5°	2.2	2.2	2.2	2.2	2.2
75°	2.2	2.2	2.2	2.2	2.2
77.5°	2.2	2.2	2.2	2.2	2.2
80°	0.0	2.2	2.2	2.2	2.2
82.5°	0.0	2.2	2.2	2.2	2.2
85°	0.0	0.0	2.2	2.2	2.2
87.5°	0.0	0.0	2.2	2.2	2.2
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)