

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: P837671

Luminaire Tested: HCSQ455D010-HM44560940-41SQMB

Issue Date: 5/17/2024



**Test Information**

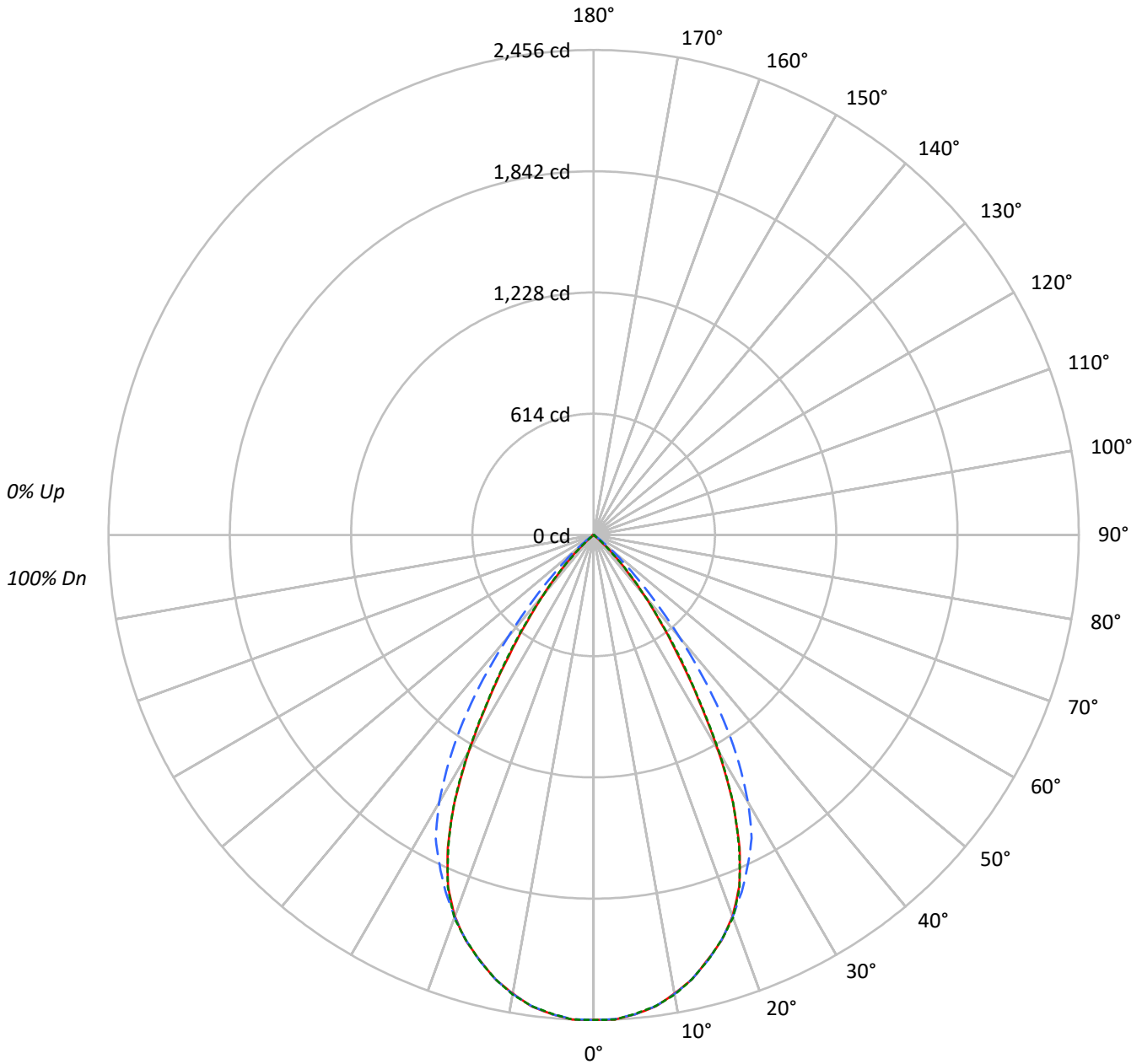
Test Method: LM-79-2019  
Report Number: P837671  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ455D010-HM44560940-41SQMB  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE BLACK TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2453.7 lumens  
Efficiency: N/A  
Efficacy: 45.4 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					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°	237955	237955	237955
5°	236871	236871	236647
10°	231986	232212	232438
15°	223503	223723	223723
20°	211886	212123	212587
25°	186812	197287	186074
30°	140957	174852	142221
35°	88390	136085	91346
40°	49851	84717	49851
45°	20920	42772	20605
50°	1718	16488	2065
55°	777	3462	777
60°	891	446	891
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: 42772 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	230.2	9.4
10°-20°	626.3	25.5
20°-30°	812.4	33.1
30°-40°	577.6	23.5
40°-50°	187.3	7.6
50°-60°	13.5	0.6
60°-70°	2.4	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°	1668.9	68.0
0°-40°	2246.5	91.6
0°-60°	2447.4	99.7
0°-90°	2453.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2453.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2456	2456	2456	2456	2456	
5°	2436	2438	2436	2436	2434	230
15°	2228	2235	2231	2235	2231	626
25°	1748	1793	1846	1802	1741	782
35°	747	884	1151	893	772	478
45°	153	216	312	221	150	127
55°	5	5	20	5	5	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	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2456.3	2456.3	2456.3	2456.3	2456.3
2.5°	2456.3	2456.3	2454.0	2454.0	2456.3
5°	2435.8	2438.1	2435.8	2435.8	2433.5
7.5°	2408.5	2408.5	2406.2	2406.2	2406.2
10°	2358.3	2360.6	2360.6	2360.6	2362.9
12.5°	2303.6	2303.6	2303.6	2303.6	2303.6
15°	2228.5	2235.3	2230.7	2235.3	2230.7
17.5°	2153.3	2153.3	2151.0	2155.5	2151.0
20°	2055.3	2055.3	2057.6	2062.1	2062.1
22.5°	1925.4	1948.2	1957.3	1952.7	1930.0
25°	1747.7	1793.2	1845.7	1802.4	1740.8
27.5°	1524.4	1611.0	1731.7	1624.6	1528.9
30°	1260.1	1389.9	1563.1	1394.5	1271.4
32.5°	986.6	1137.0	1367.1	1148.4	995.7
35°	747.4	884.1	1150.7	893.2	772.4
37.5°	551.4	676.7	913.7	681.3	567.4
40°	394.2	485.3	669.9	494.5	394.2
42.5°	252.9	344.1	471.7	346.3	264.3
45°	152.7	216.5	312.2	221.0	150.4
47.5°	68.4	123.0	193.7	127.6	68.4
50°	11.4	50.1	109.4	52.4	13.7
52.5°	6.8	9.1	52.4	9.1	6.8
55°	4.6	4.6	20.5	4.6	4.6
57.5°	4.6	4.6	4.6	4.6	4.6
60°	4.6	2.3	2.3	2.3	4.6
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



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Scaled Data Report







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

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