

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: P837701

Luminaire Tested: HCSQ460D010-HM44560930-41SQMB

Issue Date: 5/17/2024



**Test Information**

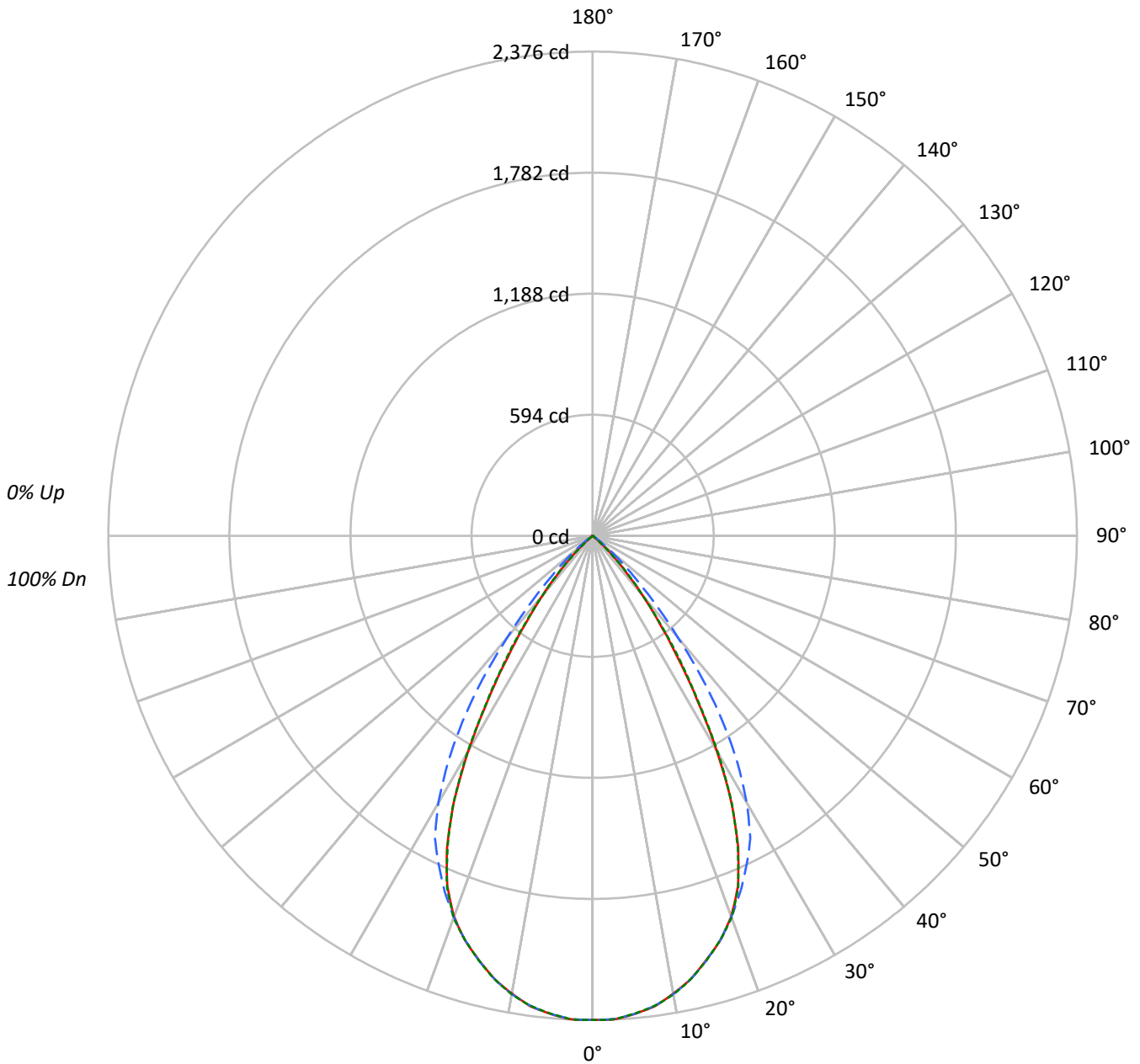
Test Method: LM-79-2019  
Report Number: P837701  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ460D010-HM44560930-41SQMB  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE BLACK TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2373.4 lumens  
Efficiency: N/A  
Efficacy: 42.4 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): 56  
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					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	100	100	100	100		
	1	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93	93	93	93	93	93		
	2	108	103	99	95	105	101	97	94	98	95	92	95	92	90	92	90	88	87	87	87	87	87	87		
	3	102	96	91	87	100	94	90	86	92	88	84	89	86	83	87	84	82	80	80	80	80	80	80		
	4	97	89	83	79	95	88	83	79	86	81	78	84	80	77	82	79	76	74	74	74	74	74	74		
	5	92	83	77	73	90	82	77	73	80	76	72	79	75	71	77	74	71	69	69	69	69	69	69		
	6	87	78	72	67	85	77	71	67	76	70	67	74	70	66	73	69	66	64	64	64	64	64	64		
	7	82	73	67	63	81	72	66	62	71	66	62	70	65	62	69	65	61	60	60	60	60	60	60		
	8	78	69	62	58	77	68	62	58	67	62	58	66	61	58	65	61	57	56	56	56	56	56	56		
	9	74	65	58	54	73	64	58	54	63	58	54	62	57	54	61	57	54	52	52	52	52	52	52		
	10	71	61	55	51	70	60	55	51	60	54	51	59	54	51	58	54	50	49	49	49	49	49	49		

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

	0°	45°	90°
0°	230176	230176	230176
5°	229120	229120	228906
10°	224401	224618	224834
15°	216191	216412	216412
20°	204959	205185	205639
25°	180698	190831	179992
30°	136338	169136	137579
35°	85492	131639	88366
40°	48220	81947	48220
45°	20235	41375	19934
50°	1658	15945	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: 41375 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	222.7	9.4
10°-20°	605.8	25.5
20°-30°	785.9	33.1
30°-40°	558.7	23.5
40°-50°	181.2	7.6
50°-60°	13.1	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°	1614.4	68.0
0°-40°	2173.1	91.6
0°-60°	2367.3	99.7
0°-90°	2373.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2373.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2376	2376	2376	2376	2376	
5°	2356	2358	2356	2356	2354	223
15°	2156	2162	2158	2162	2158	605
25°	1690	1735	1785	1743	1684	757
35°	723	855	1113	864	747	463
45°	148	209	302	214	146	123
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	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2376.0	2376.0	2376.0	2376.0	2376.0
2.5°	2376.0	2376.0	2373.8	2373.8	2376.0
5°	2356.1	2358.3	2356.1	2356.1	2353.9
7.5°	2329.7	2329.7	2327.5	2327.5	2327.5
10°	2281.2	2283.4	2283.4	2283.4	2285.6
12.5°	2228.3	2228.3	2228.3	2228.3	2228.3
15°	2155.6	2162.2	2157.8	2162.2	2157.8
17.5°	2082.8	2082.8	2080.6	2085.0	2080.6
20°	1988.1	1988.1	1990.3	1994.7	1994.7
22.5°	1862.4	1884.5	1893.3	1888.9	1866.8
25°	1690.5	1734.6	1785.3	1743.4	1683.9
27.5°	1474.5	1558.3	1675.1	1571.5	1478.9
30°	1218.8	1344.5	1512.0	1348.9	1229.9
32.5°	954.4	1099.8	1322.4	1110.8	963.2
35°	722.9	855.2	1113.1	864.0	747.2
37.5°	533.4	654.6	883.8	659.0	548.8
40°	381.3	469.5	648.0	478.3	381.3
42.5°	244.7	332.8	456.2	335.0	255.7
45°	147.7	209.4	302.0	213.8	145.5
47.5°	66.1	119.0	187.3	123.4	66.1
50°	11.0	48.5	105.8	50.7	13.2
52.5°	6.6	8.8	50.7	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



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Scaled Data Report







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

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