

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: P837571

Luminaire Tested: HCSQ445D010-HM44560840-41SQMB

Issue Date: 5/17/2024

**Test Information**

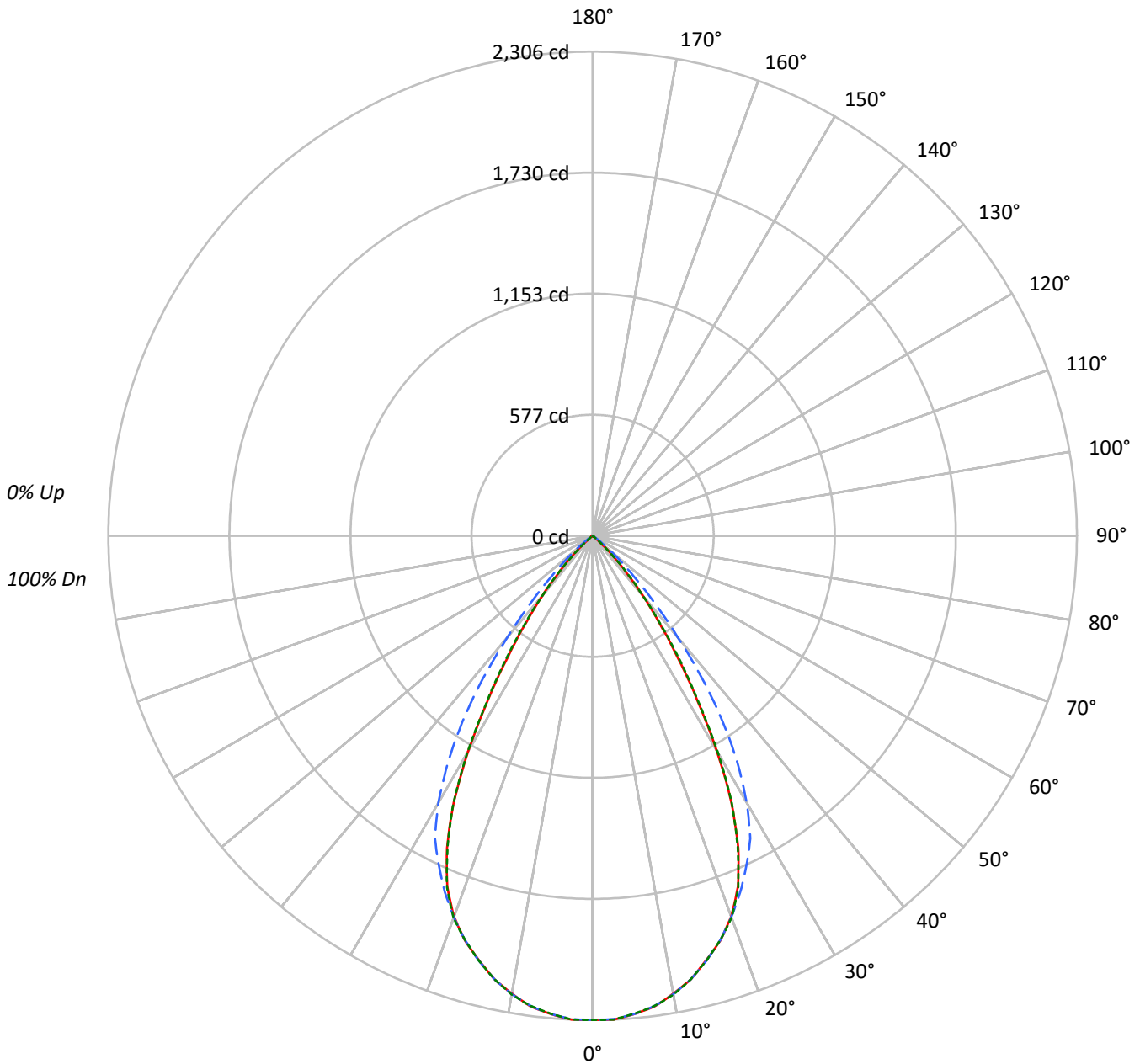
Test Method: LM-79-2019  
Report Number: P837571  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ445D010-HM44560840-41SQMB  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE BLACK TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2303.5 lumens  
Efficiency: N/A  
Efficacy: 50.2 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): 45.9  
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			
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°	223404	223404	223404
5°	222381	222381	222177
10°	217801	218017	218224
15°	209833	210043	210043
20°	198928	199144	199587
25°	175385	185219	174701
30°	132333	164158	133530
35°	82985	127760	85764
40°	46804	79532	46804
45°	19632	40155	19345
50°	1613	15478	1929
55°	726	3260	726
60°	833	407	833
65°	481	481	481
70°	595	595	595
75°	786	786	786
80°	0	1172	1172
85°	0	2334	2334

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 40155 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	216.1	9.4
10°-20°	588.0	25.5
20°-30°	762.8	33.1
30°-40°	542.3	23.5
40°-50°	175.8	7.6
50°-60°	12.7	0.6
60°-70°	2.2	0.1
70°-80°	2.2	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°	1566.9	68.0
0°-40°	2109.2	91.6
0°-60°	2297.7	99.7
0°-90°	2303.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2303.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2306	2306	2306	2306	2306	
5°	2287	2289	2287	2287	2285	216
15°	2092	2099	2094	2099	2094	588
25°	1641	1684	1733	1692	1634	735
35°	702	830	1080	839	725	449
45°	143	203	293	208	141	119
55°	4	4	19	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°	2306.1	2306.1	2306.1	2306.1	2306.1
2.5°	2306.1	2306.1	2304.0	2304.0	2306.1
5°	2286.8	2289.0	2286.8	2286.8	2284.7
7.5°	2261.2	2261.2	2259.0	2259.0	2259.0
10°	2214.1	2216.3	2216.3	2216.3	2218.4
12.5°	2162.8	2162.8	2162.8	2162.8	2162.8
15°	2092.2	2098.6	2094.3	2098.6	2094.3
17.5°	2021.6	2021.6	2019.4	2023.7	2019.4
20°	1929.6	1929.6	1931.7	1936.0	1936.0
22.5°	1807.7	1829.0	1837.6	1833.3	1811.9
25°	1640.8	1683.6	1732.8	1692.1	1634.4
27.5°	1431.2	1512.4	1625.8	1525.3	1435.4
30°	1183.0	1304.9	1467.5	1309.2	1193.7
32.5°	926.3	1067.5	1283.5	1078.2	934.8
35°	701.7	830.0	1080.3	838.6	725.2
37.5°	517.7	635.4	857.8	639.6	532.7
40°	370.1	455.7	628.9	464.2	370.1
42.5°	237.5	323.0	442.8	325.2	248.2
45°	143.3	203.2	293.1	207.5	141.2
47.5°	64.2	115.5	181.8	119.8	64.2
50°	10.7	47.1	102.7	49.2	12.8
52.5°	6.4	8.6	49.2	8.6	6.4
55°	4.3	4.3	19.3	4.3	4.3
57.5°	4.3	4.3	4.3	4.3	4.3
60°	4.3	2.1	2.1	2.1	4.3
62.5°	2.1	2.1	2.1	2.1	2.1
65°	2.1	2.1	2.1	2.1	2.1
67.5°	2.1	2.1	2.1	2.1	2.1
70°	2.1	2.1	2.1	2.1	2.1
72.5°	2.1	2.1	2.1	2.1	2.1
75°	2.1	2.1	2.1	2.1	2.1
77.5°	2.1	2.1	2.1	2.1	2.1
80°	0.0	2.1	2.1	2.1	2.1
82.5°	0.0	2.1	2.1	2.1	2.1
85°	0.0	0.0	2.1	2.1	2.1
87.5°	0.0	0.0	2.1	2.1	2.1
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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