

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: P837597

Luminaire Tested: HCSQ450D010-HM44560827-41SQMW

Issue Date: 5/17/2024



**Test Information**

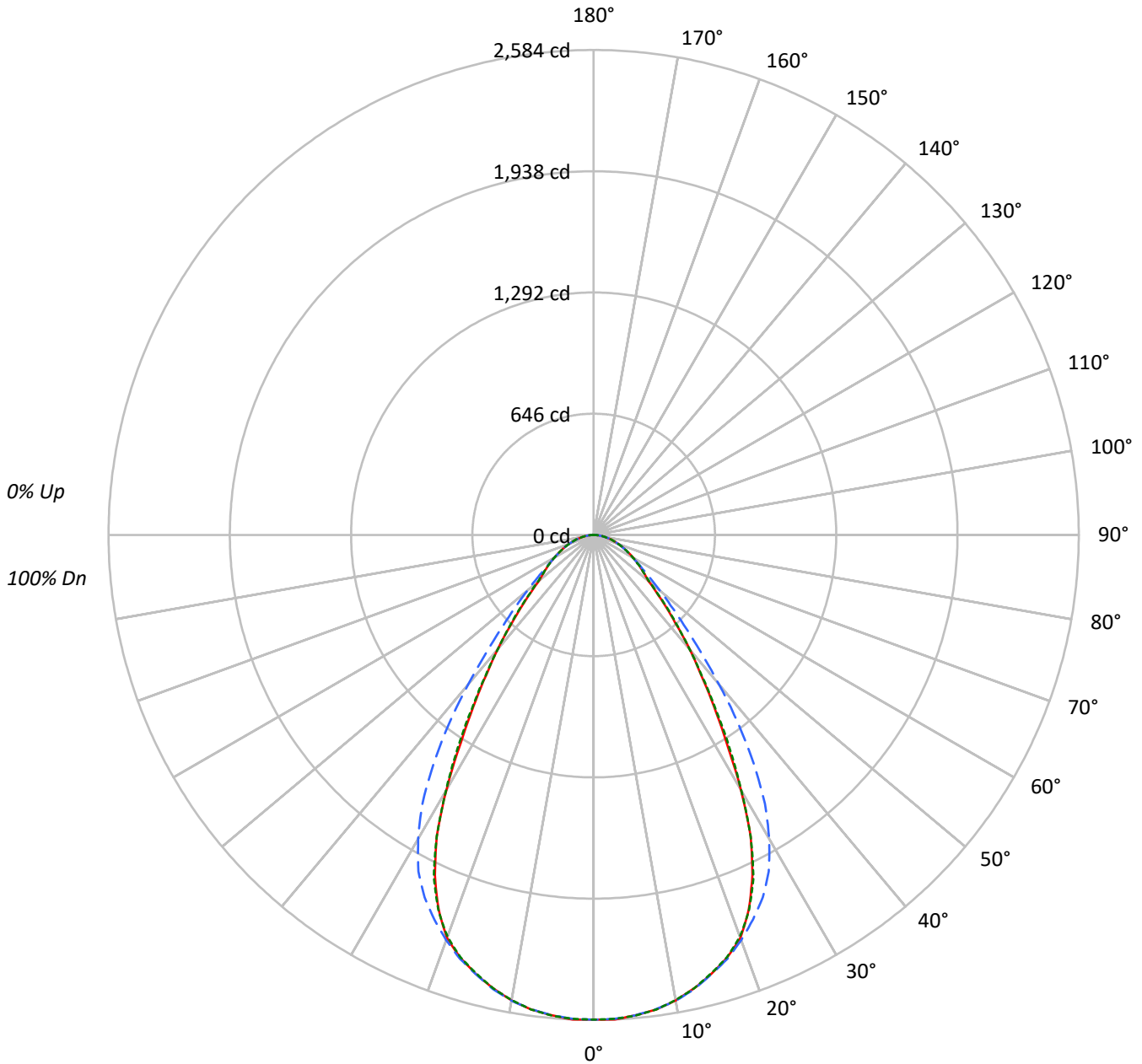
Test Method: LM-79-2019  
Report Number: P837597  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-3)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560827-41SQMW  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3747.8 lumens  
Efficiency: N/A  
Efficacy: 75.4 lumens/watt  
Spacing Criteria (0/90/45): 1.03 / 1.03 / 1.07  
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

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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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	111	108	105	102	109	106	103	100	101	99	97	98	96	94	94	93	91	89								
2	104	98	92	88	102	96	91	87	92	88	85	89	86	83	86	84	81	79								
3	97	89	82	77	95	87	81	76	84	79	75	82	78	74	79	76	73	71								
4	91	81	74	69	89	80	73	68	77	72	67	75	70	66	73	69	66	64								
5	85	74	67	62	83	73	66	61	71	65	61	70	64	60	68	63	60	58								
6	79	69	61	56	78	68	61	56	66	60	55	64	59	55	63	58	54	53								
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48								
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44								
9	66	55	48	43	65	54	48	43	53	47	43	52	47	43	51	46	43	41								
10	63	51	45	40	62	51	44	40	50	44	40	49	44	40	48	43	40	38								

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

	0°	45°	90°
0°	250181	250181	250181
5°	249775	249775	249970
10°	247725	247922	247528
15°	242909	243110	242508
20°	235629	236866	234794
25°	213845	227783	215352
30°	175534	209205	176205
35°	131946	175609	133838
40°	100487	130939	100234
45°	75050	92915	76420
50°	57165	69252	58371
55°	51514	54233	51514
60°	47043	46655	46655
65°	42774	42774	42774
70°	39796	39229	39229
75°	36793	36045	36793
80°	33585	32469	33585
85°	29011	29011	29011

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°

Vertical Angle: 45°

Luminance: 92915 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	243.6	6.5
10°-20°	681.8	18.2
20°-30°	937.8	25.0
30°-40°	798.3	21.3
40°-50°	482.2	12.9
50°-60°	284.2	7.6
60°-70°	186.4	5.0
70°-80°	103.4	2.8
80°-90°	30.2	0.8
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°	1863.2	49.7
0°-40°	2661.5	71.0
0°-60°	3427.8	91.5
0°-90°	3747.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3747.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2582	2582	2582	2582	2582	
5°	2568	2570	2568	2566	2570	244
15°	2422	2428	2424	2422	2418	681
25°	2001	2063	2131	2067	2015	904
35°	1116	1228	1485	1262	1132	706
45°	548	606	678	612	558	431
55°	305	311	321	311	305	274
65°	187	189	187	187	187	187
75°	98	98	96	96	98	104
85°	26	26	26	26	26	30
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2582.5	2582.5	2582.5	2582.5	2582.5
2.5°	2584.5	2578.5	2580.5	2578.5	2580.5
5°	2568.5	2570.5	2568.5	2566.5	2570.5
7.5°	2550.4	2548.4	2548.4	2546.4	2550.4
10°	2518.3	2514.3	2520.3	2516.3	2516.3
12.5°	2474.2	2480.2	2478.2	2478.2	2474.2
15°	2422.0	2428.0	2424.0	2422.0	2418.0
17.5°	2361.8	2365.8	2367.8	2359.8	2359.8
20°	2285.6	2293.6	2297.6	2283.6	2277.5
22.5°	2159.1	2195.3	2217.3	2193.3	2163.2
25°	2000.6	2062.8	2131.0	2066.8	2014.7
27.5°	1810.0	1898.3	2020.7	1912.3	1810.0
30°	1569.2	1699.6	1870.2	1713.7	1575.2
32.5°	1320.4	1458.8	1697.6	1482.9	1348.5
35°	1115.7	1228.1	1484.9	1262.2	1131.7
37.5°	939.1	1035.4	1262.2	1057.5	949.1
40°	794.6	870.9	1035.4	880.9	792.6
42.5°	656.2	728.4	838.8	738.4	664.2
45°	547.8	606.0	678.2	612.0	557.8
47.5°	455.5	503.7	555.8	503.7	461.5
50°	379.3	417.4	459.5	417.4	387.3
52.5°	339.1	351.2	379.3	353.2	339.1
55°	305.0	311.0	321.1	311.0	305.0
57.5°	272.9	276.9	274.9	274.9	272.9
60°	242.8	244.8	240.8	242.8	240.8
62.5°	214.7	214.7	210.7	214.7	212.7
65°	186.6	188.6	186.6	186.6	186.6
67.5°	162.5	162.5	160.5	162.5	162.5
70°	140.5	140.5	138.5	140.5	138.5
72.5°	118.4	118.4	116.4	116.4	116.4
75°	98.3	98.3	96.3	96.3	98.3
77.5°	78.3	78.3	76.3	78.3	78.3
80°	60.2	60.2	58.2	60.2	60.2
82.5°	42.1	42.1	42.1	44.1	44.1
85°	26.1	26.1	26.1	26.1	26.1
87.5°	12.0	12.0	12.0	12.0	14.0
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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