

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: P837627

Luminaire Tested: HCSQ450D010-HM44560935-41SQMW

Issue Date: 5/17/2024



**Test Information**

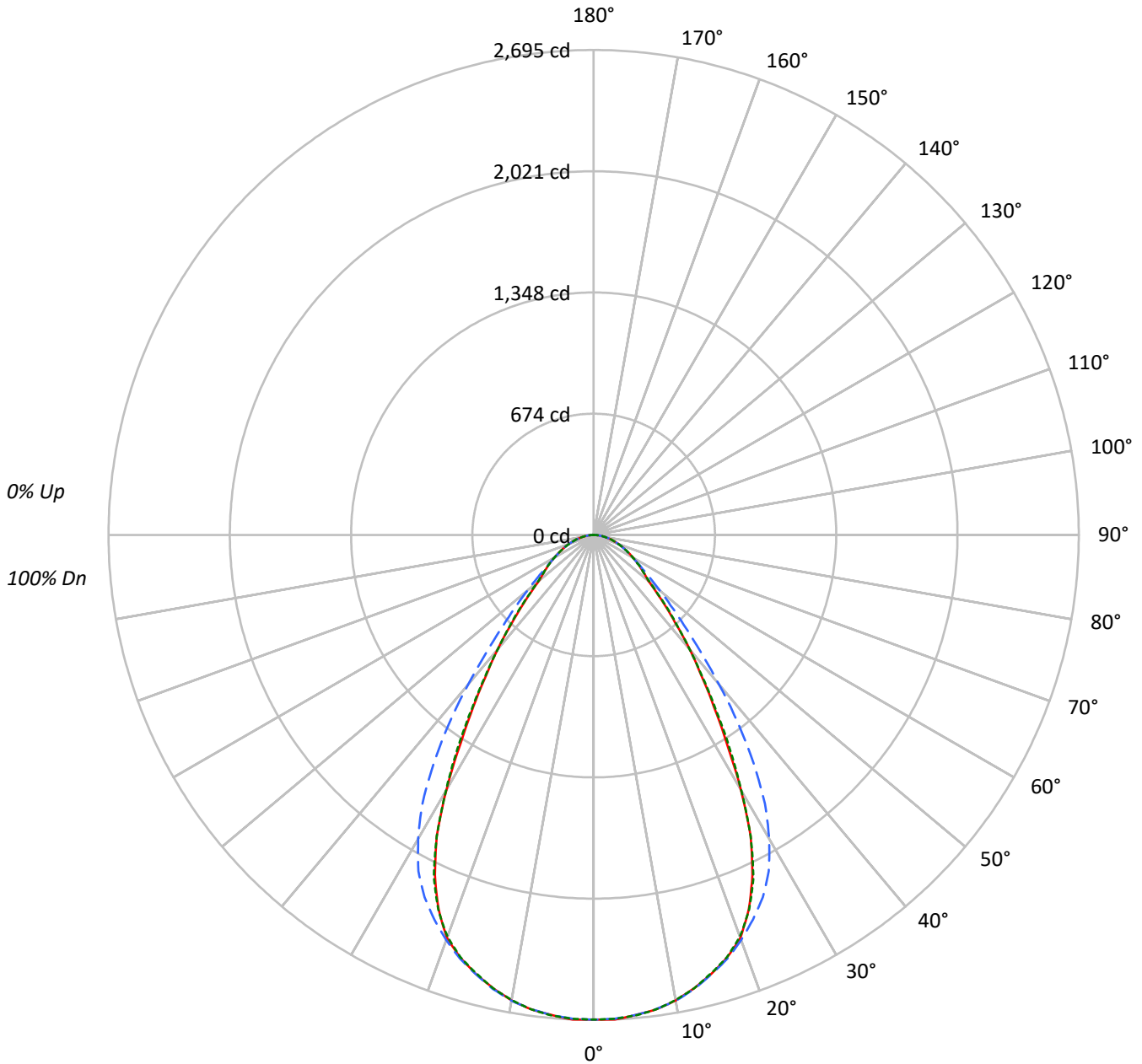
Test Method: LM-79-2019  
Report Number: P837627  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-3)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560935-41SQMW  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3908.5 lumens  
Efficiency: N/A  
Efficacy: 78.6 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					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	111	108	105	102	109	106	103	100	101	99	97	98	96	94	94	93	91	89					89			
2	104	98	92	88	102	96	91	87	92	88	85	89	86	83	86	84	81	79					79			
3	97	89	82	77	95	87	81	76	84	79	75	82	78	74	79	76	73	71					71			
4	91	81	74	69	89	80	73	68	77	72	67	75	70	66	73	69	66	64					64			
5	85	74	67	62	83	73	66	61	71	65	61	70	64	60	68	63	60	58					58			
6	79	69	61	56	78	68	61	56	66	60	55	64	59	55	63	58	54	53					53			
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48					48			
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44					44			
9	66	55	48	43	65	54	48	43	53	47	43	52	47	43	51	46	43	41					41			
10	63	51	45	40	62	51	44	40	50	44	40	49	44	40	48	43	40	38					38			

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

	0°	45°	90°
0°	260905	260905	260905
5°	260482	260482	260686
10°	258349	258555	258142
15°	253320	253530	252898
20°	245721	247020	244855
25°	223016	237553	224576
30°	183051	218165	183756
35°	137599	183142	139574
40°	104799	136554	104533
45°	78270	96902	79708
50°	59606	72221	60872
55°	53726	56547	53726
60°	49058	48651	48651
65°	44608	44608	44608
70°	41495	40901	40901
75°	38366	37580	38366
80°	35035	33864	35035
85°	30233	30233	30233

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 96902 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	254.0	6.5
10°-20°	711.1	18.2
20°-30°	978.0	25.0
30°-40°	832.5	21.3
40°-50°	502.9	12.9
50°-60°	296.4	7.6
60°-70°	194.4	5.0
70°-80°	107.8	2.8
80°-90°	31.5	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°	1943.0	49.7
0°-40°	2775.5	71.0
0°-60°	3574.8	91.5
0°-90°	3908.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3908.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2693	2693	2693	2693	2693	
5°	2679	2681	2679	2676	2681	254
15°	2526	2532	2528	2526	2522	710
25°	2086	2151	2222	2155	2101	943
35°	1164	1281	1549	1316	1180	737
45°	571	632	707	638	582	449
55°	318	324	335	324	318	286
65°	195	197	195	195	195	195
75°	102	102	100	100	102	109
85°	27	27	27	27	27	31
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2693.2	2693.2	2693.2	2693.2	2693.2
2.5°	2695.3	2689.0	2691.1	2689.0	2691.1
5°	2678.6	2680.7	2678.6	2676.5	2680.7
7.5°	2659.7	2657.6	2657.6	2655.6	2659.7
10°	2626.3	2622.1	2628.4	2624.2	2624.2
12.5°	2580.2	2586.5	2584.4	2584.4	2580.2
15°	2525.8	2532.1	2527.9	2525.8	2521.6
17.5°	2463.0	2467.2	2469.3	2460.9	2460.9
20°	2383.5	2391.9	2396.1	2381.4	2375.1
22.5°	2251.7	2289.3	2312.4	2287.3	2255.9
25°	2086.4	2151.2	2222.4	2155.4	2101.0
27.5°	1887.6	1979.6	2107.3	1994.3	1887.6
30°	1636.4	1772.5	1950.3	1787.1	1642.7
32.5°	1377.0	1521.3	1770.4	1546.5	1406.3
35°	1163.5	1280.7	1548.6	1316.3	1180.2
37.5°	979.4	1079.8	1316.3	1102.8	989.8
40°	828.7	908.2	1079.8	918.7	826.6
42.5°	684.3	759.6	874.7	770.1	692.7
45°	571.3	632.0	707.3	638.3	581.8
47.5°	475.0	525.3	579.7	525.3	481.3
50°	395.5	435.3	479.2	435.3	403.9
52.5°	353.7	366.2	395.5	368.3	353.7
55°	318.1	324.4	334.8	324.4	318.1
57.5°	284.6	288.8	286.7	286.7	284.6
60°	253.2	255.3	251.1	253.2	251.1
62.5°	223.9	223.9	219.7	223.9	221.8
65°	194.6	196.7	194.6	194.6	194.6
67.5°	169.5	169.5	167.4	169.5	169.5
70°	146.5	146.5	144.4	146.5	144.4
72.5°	123.5	123.5	121.4	121.4	121.4
75°	102.5	102.5	100.4	100.4	102.5
77.5°	81.6	81.6	79.5	81.6	81.6
80°	62.8	62.8	60.7	62.8	62.8
82.5°	43.9	43.9	43.9	46.0	46.0
85°	27.2	27.2	27.2	27.2	27.2
87.5°	12.6	12.6	12.6	12.6	14.6
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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