

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: P837594

Luminaire Tested: HCSQ450D010-HM44560827-41SQH

Issue Date: 5/17/2024

**Test Information**

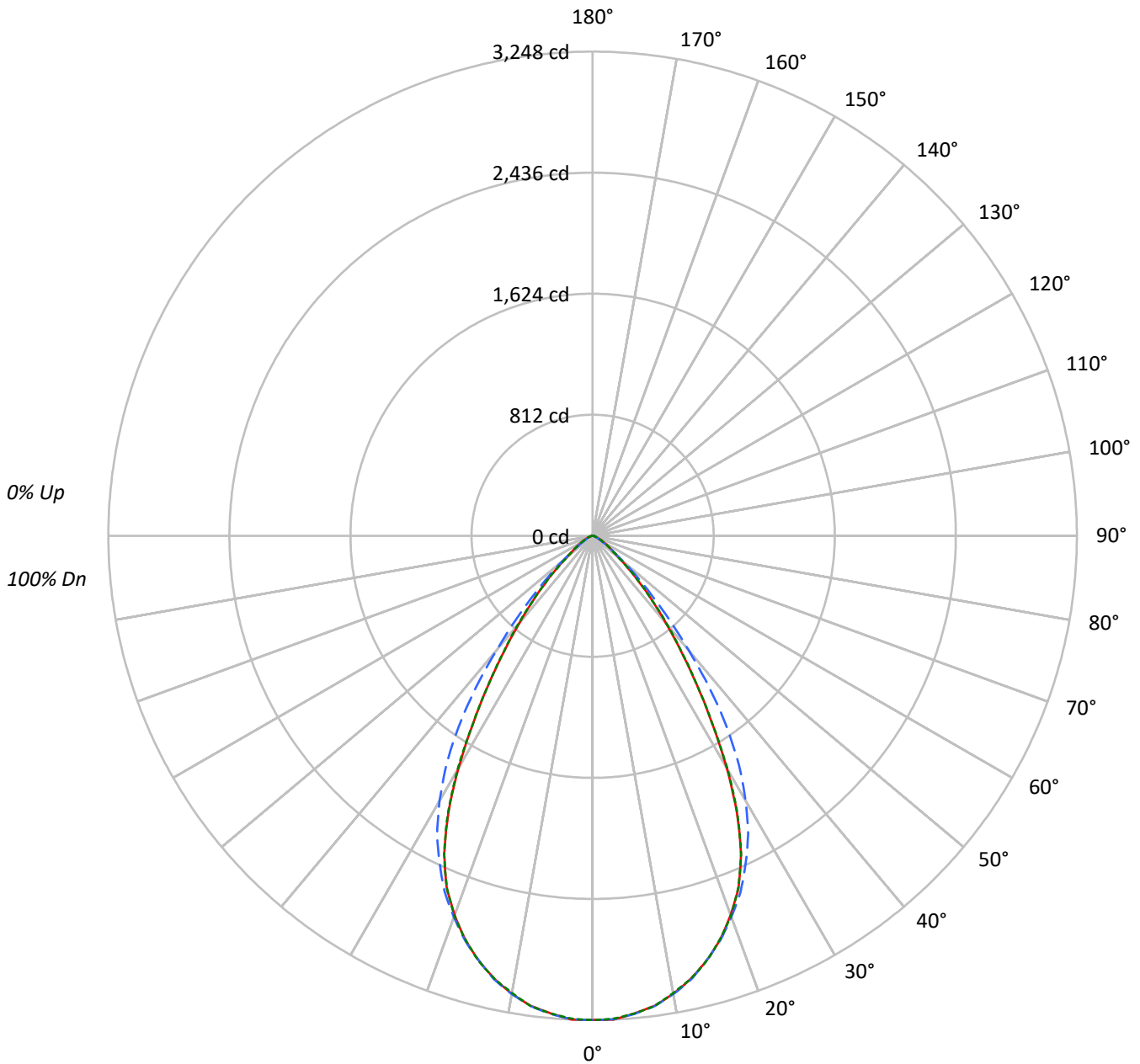
Test Method: LM-79-2019  
Report Number: P837594  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-2)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560827-41SQH  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3651.5 lumens  
Efficiency: N/A  
Efficacy: 73.5 lumens/watt  
Spacing Criteria (0/90/45): 0.98 / 0.98 / 1.01  
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	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	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92					92			
2	107	101	97	93	104	100	95	92	96	93	90	93	90	88	90	88	86	85					85			
3	101	93	88	84	98	92	87	83	89	85	82	87	83	80	85	82	79	77					77			
4	95	87	80	76	93	85	80	75	83	78	74	81	77	74	79	76	73	71					71			
5	89	80	74	69	88	79	73	69	77	72	68	76	71	68	74	70	67	65					65			
6	84	75	68	63	83	74	68	63	72	67	63	71	66	62	69	65	62	60					60			
7	80	70	63	59	78	69	63	58	68	62	58	66	61	58	65	61	57	56					56			
8	75	65	59	54	74	65	58	54	63	58	54	62	57	54	61	57	53	52					52			
9	72	61	55	50	70	61	54	50	60	54	50	59	54	50	58	53	50	48					48			
10	68	57	51	47	67	57	51	47	56	51	47	55	50	47	55	50	46	45					45			

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

	0°	45°	90°
0°	314690	314690	314690
5°	312771	313160	312771
10°	306914	307111	306324
15°	296014	295814	296215
20°	279041	280484	279660
25°	251780	259508	251780
30°	201106	229608	202672
35°	143560	185791	143796
40°	96933	126361	98451
45°	61569	74762	61843
50°	35071	39908	33865
55°	23038	19322	22700
60°	15946	11276	15558
65°	11049	8275	11049
70°	7959	6260	7959
75°	5240	5240	5240
80°	3347	4463	4463
85°	4446	4446	4446

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 74762 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	304.3	8.3
10°-20°	827.5	22.7
20°-30°	1083.4	29.7
30°-40°	851.5	23.3
40°-50°	397.7	10.9
50°-60°	123.3	3.4
60°-70°	44.0	1.2
70°-80°	15.5	0.4
80°-90°	4.3	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°	2215.2	60.7
0°-40°	3066.8	84.0
0°-60°	3587.8	98.3
0°-90°	3651.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3651.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3248	3248	3248	3248	3248	
5°	3216	3218	3220	3224	3216	304
15°	2952	2952	2950	2952	2954	827
25°	2356	2388	2428	2390	2356	1059
35°	1214	1324	1571	1340	1216	765
45°	449	504	546	494	451	358
55°	136	128	114	126	134	128
65°	48	44	36	42	48	50
75°	14	14	14	14	14	16
85°	4	4	4	4	4	4
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3248.4	3248.4	3248.4	3248.4	3248.4
2.5°	3248.4	3244.4	3246.4	3242.4	3242.4
5°	3216.3	3218.3	3220.3	3224.3	3216.3
7.5°	3180.2	3184.2	3182.2	3182.2	3182.2
10°	3120.0	3122.0	3122.0	3122.0	3114.0
12.5°	3043.8	3047.8	3049.8	3043.8	3043.8
15°	2951.5	2951.5	2949.5	2951.5	2953.5
17.5°	2841.1	2847.1	2847.1	2841.1	2839.1
20°	2706.7	2716.7	2720.7	2712.7	2712.7
22.5°	2556.2	2566.2	2590.3	2570.2	2554.2
25°	2355.5	2387.7	2427.8	2389.7	2355.5
27.5°	2096.7	2166.9	2259.2	2179.0	2102.7
30°	1797.8	1912.1	2052.6	1918.1	1811.8
32.5°	1492.8	1621.2	1827.9	1631.2	1492.8
35°	1213.9	1324.2	1571.0	1340.3	1215.9
37.5°	965.1	1071.4	1288.1	1083.5	979.1
40°	766.5	852.7	999.2	850.7	778.5
42.5°	597.9	660.1	756.4	658.1	595.9
45°	449.4	503.6	545.7	493.6	451.4
47.5°	331.1	367.2	391.3	361.2	323.0
50°	232.7	258.8	264.8	252.8	224.7
52.5°	174.6	174.6	176.6	172.6	170.5
55°	136.4	128.4	114.4	126.4	134.4
57.5°	106.3	98.3	80.3	94.3	104.3
60°	82.3	74.2	58.2	72.2	80.3
62.5°	64.2	56.2	46.1	56.2	62.2
65°	48.2	44.1	36.1	42.1	48.2
67.5°	36.1	32.1	28.1	32.1	36.1
70°	28.1	26.1	22.1	24.1	28.1
72.5°	20.1	18.1	18.1	18.1	20.1
75°	14.0	14.0	14.0	14.0	14.0
77.5°	10.0	10.0	10.0	10.0	10.0
80°	6.0	6.0	8.0	8.0	8.0
82.5°	4.0	4.0	6.0	6.0	6.0
85°	4.0	4.0	4.0	4.0	4.0
87.5°	2.0	2.0	2.0	4.0	4.0
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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