

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: P837616

Luminaire Tested: HCSQ450D010-HM44560927-41SQMB

Issue Date: 5/17/2024



**Test Information**

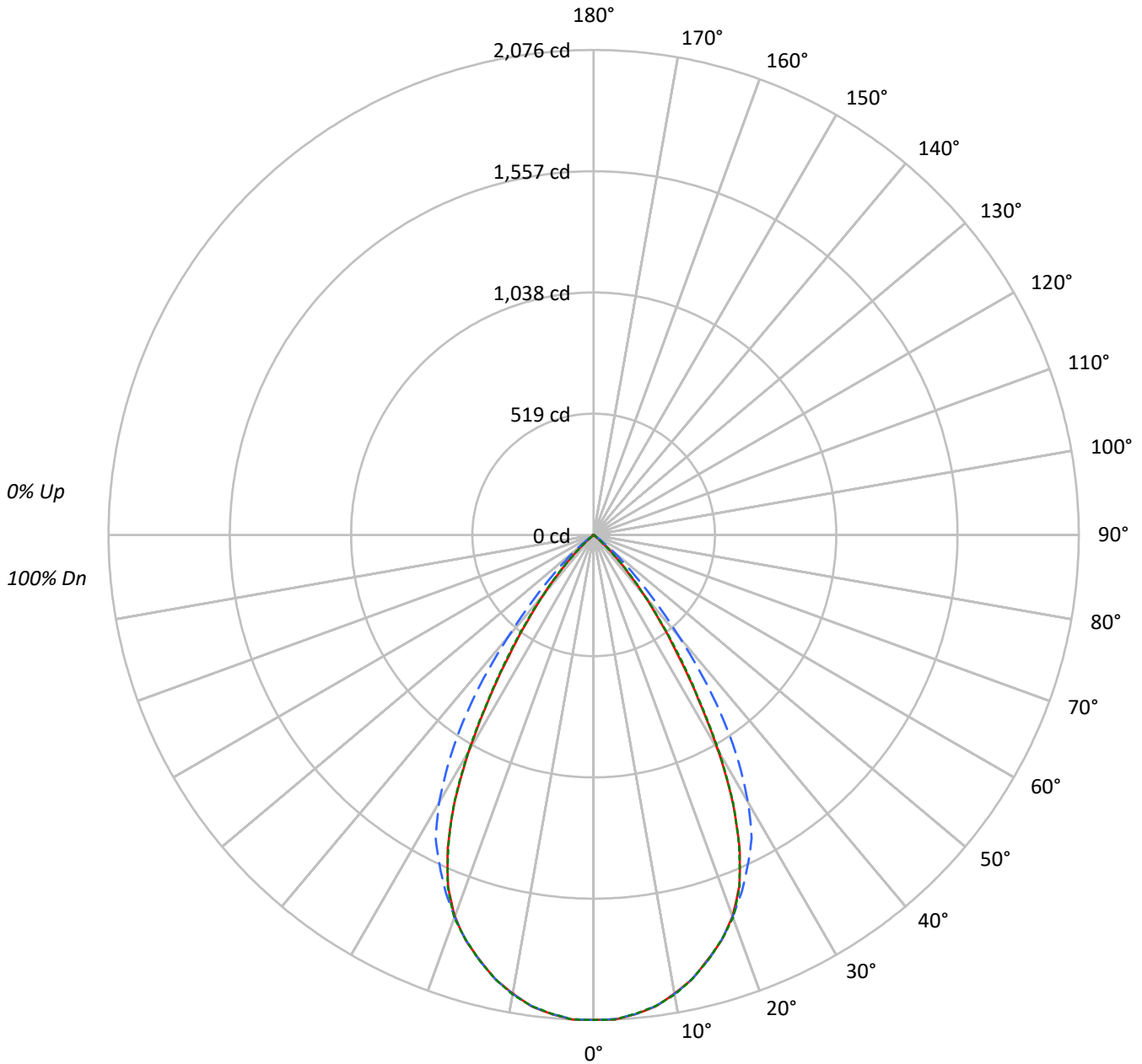
Test Method: LM-79-2019  
Report Number: P837616  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560927-41SQMB  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE BLACK TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2074.0 lumens  
Efficiency: N/A  
Efficacy: 41.7 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): 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	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93								
2	108	103	99	95	105	101	97	94	98	95	92	95	92	90	92	90	88	87								
3	102	96	91	87	100	94	90	86	92	88	84	89	86	83	87	84	82	80								
4	97	89	83	79	95	88	83	79	86	81	78	84	80	77	82	79	76	74								
5	92	83	77	73	90	82	77	73	80	76	72	79	75	71	77	74	71	69								
6	87	78	72	67	85	77	71	67	76	70	67	74	70	66	73	69	66	64								
7	82	73	67	63	81	72	66	62	71	66	62	70	65	62	69	65	61	60								
8	78	69	62	58	77	68	62	58	67	62	58	66	61	58	65	61	57	56								
9	74	65	58	54	73	64	58	54	63	58	54	62	57	54	61	57	54	52								
10	71	61	55	51	70	60	55	51	60	54	51	59	54	51	58	54	50	49								

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

	0°	45°	90°
0°	201142	201142	201142
5°	200219	200219	200034
10°	196091	196287	196474
15°	188922	189112	189112
20°	179103	179299	179701
25°	157909	166759	157289
30°	119144	147803	120218
35°	74707	115023	77214
40°	42137	71615	42137
45°	17673	36155	17413
50°	1447	13926	1748
55°	659	2922	659
60°	756	368	756
65°	436	436	436
70°	538	538	538
75°	711	711	711
80°	0	1060	1060
85°	0	2112	2112

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 36155 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	194.6	9.4
10°-20°	529.4	25.5
20°-30°	686.8	33.1
30°-40°	488.2	23.5
40°-50°	158.3	7.6
50°-60°	11.4	0.6
60°-70°	1.9	0.1
70°-80°	2.0	0.1
80°-90°	1.3	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°	1410.7	68.0
0°-40°	1899.0	91.6
0°-60°	2068.7	99.7
0°-90°	2074.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2074.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2076	2076	2076	2076	2076	
5°	2059	2061	2059	2059	2057	195
15°	1884	1889	1886	1889	1886	529
25°	1477	1516	1560	1524	1472	661
35°	632	747	973	755	653	404
45°	129	183	264	187	127	107
55°	4	4	17	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°	2076.3	2076.3	2076.3	2076.3	2076.3
2.5°	2076.3	2076.3	2074.3	2074.3	2076.3
5°	2058.9	2060.9	2058.9	2058.9	2057.0
7.5°	2035.8	2035.8	2033.9	2033.9	2033.9
10°	1993.4	1995.4	1995.4	1995.4	1997.3
12.5°	1947.2	1947.2	1947.2	1947.2	1947.2
15°	1883.7	1889.4	1885.6	1889.4	1885.6
17.5°	1820.1	1820.1	1818.2	1822.0	1818.2
20°	1737.3	1737.3	1739.2	1743.1	1743.1
22.5°	1627.5	1646.8	1654.5	1650.6	1631.4
25°	1477.3	1515.8	1560.1	1523.5	1471.5
27.5°	1288.5	1361.7	1463.8	1373.3	1292.4
30°	1065.1	1174.9	1321.3	1178.7	1074.7
32.5°	834.0	961.1	1155.6	970.7	841.7
35°	631.7	747.3	972.6	755.0	652.9
37.5°	466.1	572.0	772.3	575.9	479.6
40°	333.2	410.2	566.3	417.9	333.2
42.5°	213.8	290.8	398.7	292.8	223.4
45°	129.0	183.0	263.9	186.8	127.1
47.5°	57.8	104.0	163.7	107.9	57.8
50°	9.6	42.4	92.4	44.3	11.6
52.5°	5.8	7.7	44.3	7.7	5.8
55°	3.9	3.9	17.3	3.9	3.9
57.5°	3.9	3.9	3.9	3.9	3.9
60°	3.9	1.9	1.9	1.9	3.9
62.5°	1.9	1.9	1.9	1.9	1.9
65°	1.9	1.9	1.9	1.9	1.9
67.5°	1.9	1.9	1.9	1.9	1.9
70°	1.9	1.9	1.9	1.9	1.9
72.5°	1.9	1.9	1.9	1.9	1.9
75°	1.9	1.9	1.9	1.9	1.9
77.5°	1.9	1.9	1.9	1.9	1.9
80°	0.0	1.9	1.9	1.9	1.9
82.5°	0.0	1.9	1.9	1.9	1.9
85°	0.0	0.0	1.9	1.9	1.9
87.5°	0.0	0.0	1.9	1.9	1.9
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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