

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: P837617

Luminaire Tested: HCSQ450D010-HM44560927-41SQMW

Issue Date: 5/17/2024



**Test Information**

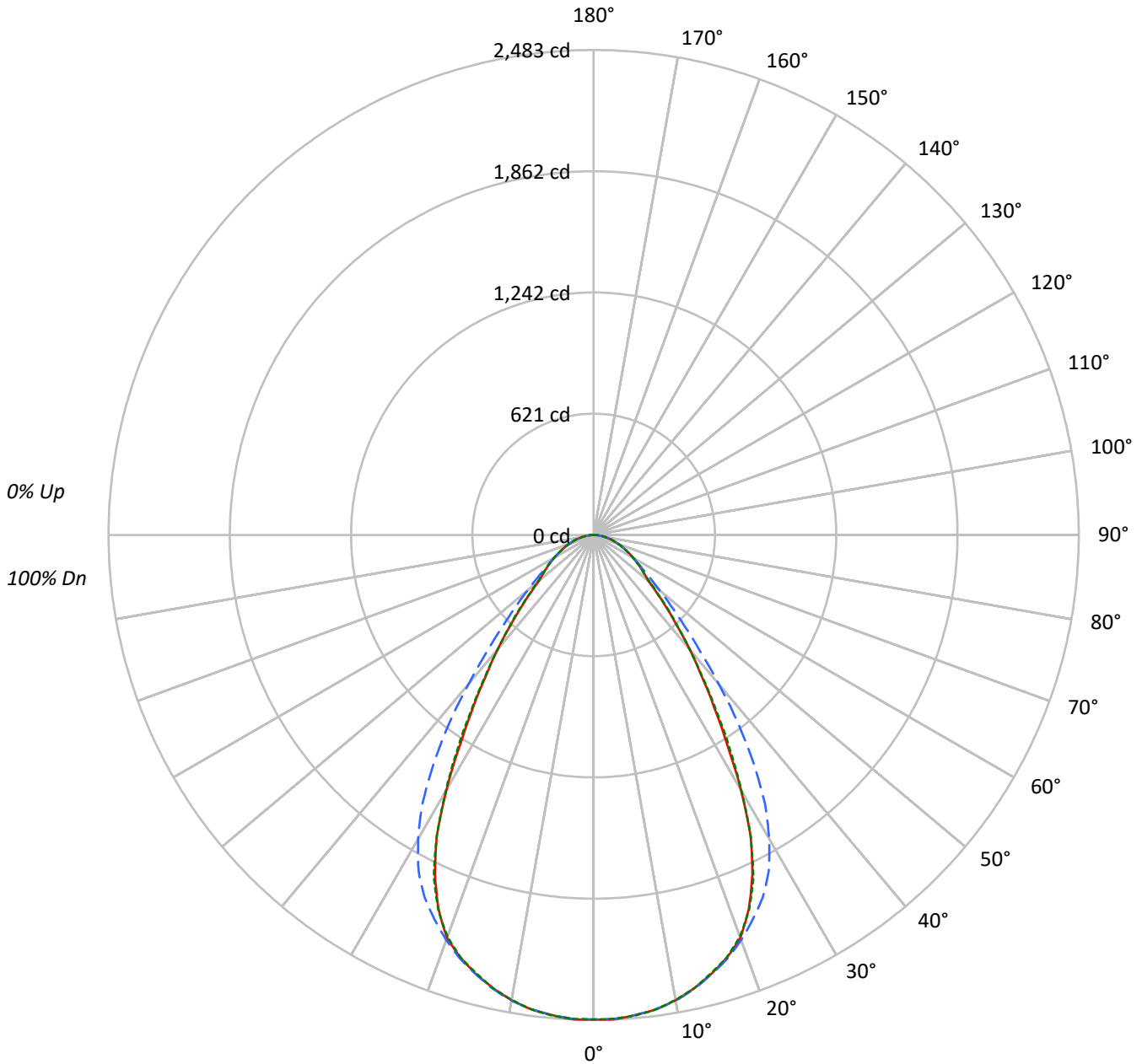
Test Method: LM-79-2019  
Report Number: P837617  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-3)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560927-41SQMW  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3600.6 lumens  
Efficiency: N/A  
Efficacy: 72.4 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									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°	240358	240358	240358
5°	239963	239963	240148
10°	237996	238183	237809
15°	233371	233562	232980
20°	226371	227556	225577
25°	205443	218836	206886
30°	168632	200983	169281
35°	126766	168714	128587
40°	96541	125792	96301
45°	72104	89271	73420
50°	54919	66539	56080
55°	49487	52088	49487
60°	45202	44815	44815
65°	41100	41100	41100
70°	38210	37672	37672
75°	35371	34623	35371
80°	32246	31186	32246
85°	27899	27899	27899

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 89271 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	234.0	6.5
10°-20°	655.1	18.2
20°-30°	900.9	25.0
30°-40°	766.9	21.3
40°-50°	463.3	12.9
50°-60°	273.0	7.6
60°-70°	179.1	5.0
70°-80°	99.3	2.8
80°-90°	29.1	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°	1790.0	49.7
0°-40°	2556.9	71.0
0°-60°	3293.2	91.5
0°-90°	3600.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3600.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2481	2481	2481	2481	2481	
5°	2468	2470	2468	2466	2470	234
15°	2327	2333	2329	2327	2323	654
25°	1922	1982	2047	1986	1936	869
35°	1072	1180	1427	1213	1087	679
45°	526	582	652	588	536	414
55°	293	299	308	299	293	264
65°	179	181	179	179	179	180
75°	94	94	92	92	94	100
85°	25	25	25	25	25	29
90°	0	0	0	0	0	

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2481.1	2481.1	2481.1	2481.1	2481.1
2.5°	2483.0	2477.2	2479.2	2477.2	2479.2
5°	2467.6	2469.5	2467.6	2465.7	2469.5
7.5°	2450.2	2448.3	2448.3	2446.4	2450.2
10°	2419.4	2415.5	2421.3	2417.5	2417.5
12.5°	2377.0	2382.8	2380.8	2380.8	2377.0
15°	2326.9	2332.6	2328.8	2326.9	2323.0
17.5°	2269.0	2272.9	2274.8	2267.1	2267.1
20°	2195.8	2203.5	2207.3	2193.8	2188.1
22.5°	2074.3	2109.0	2130.2	2107.1	2078.2
25°	1922.0	1981.8	2047.3	1985.6	1935.5
27.5°	1738.9	1823.7	1941.3	1837.2	1738.9
30°	1507.5	1632.9	1796.7	1646.3	1513.3
32.5°	1268.5	1401.5	1630.9	1424.6	1295.5
35°	1071.9	1179.8	1426.6	1212.6	1087.3
37.5°	902.2	994.7	1212.6	1016.0	911.9
40°	763.4	836.7	994.7	846.3	761.5
42.5°	630.4	699.8	805.8	709.4	638.1
45°	526.3	582.2	651.6	588.0	535.9
47.5°	437.6	483.9	534.0	483.9	443.4
50°	364.4	401.0	441.5	401.0	372.1
52.5°	325.8	337.4	364.4	339.3	325.8
55°	293.0	298.8	308.4	298.8	293.0
57.5°	262.2	266.0	264.1	264.1	262.2
60°	233.3	235.2	231.3	233.3	231.3
62.5°	206.3	206.3	202.4	206.3	204.3
65°	179.3	181.2	179.3	179.3	179.3
67.5°	156.2	156.2	154.2	156.2	156.2
70°	134.9	134.9	133.0	134.9	133.0
72.5°	113.7	113.7	111.8	111.8	111.8
75°	94.5	94.5	92.5	92.5	94.5
77.5°	75.2	75.2	73.3	75.2	75.2
80°	57.8	57.8	55.9	57.8	57.8
82.5°	40.5	40.5	40.5	42.4	42.4
85°	25.1	25.1	25.1	25.1	25.1
87.5°	11.6	11.6	11.6	11.6	13.5
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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