

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: P837576

Luminaire Tested: HCSQ445D010-HM44560927-41SQMB

Issue Date: 5/17/2024

**Test Information**

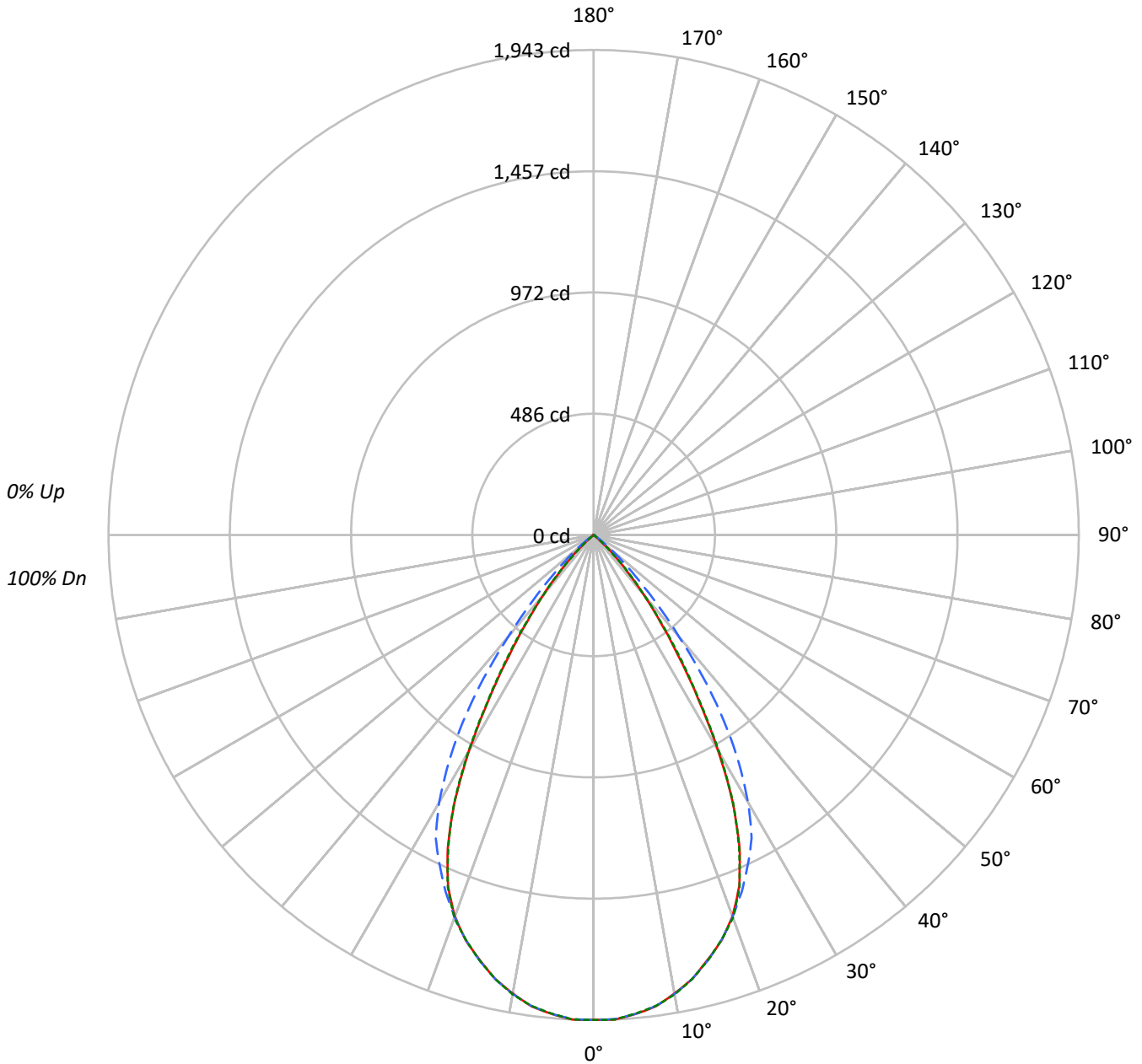
Test Method: LM-79-2019  
Report Number: P837576  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ445D010-HM44560927-41SQMB  
Description: 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: 1941.0 lumens  
Efficiency: N/A  
Efficacy: 42.3 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): 45.9  
Input Voltage (V): NR  
Input Current (Ain): 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°	188239	188239	188239
5°	187382	187382	187207
10°	183519	183696	183873
15°	176806	176987	176987
20°	167618	167804	168175
25°	147776	156060	147199
30°	111504	138317	112511
35°	69917	107655	72271
40°	39431	67012	39431
45°	16550	33826	16303
50°	1356	13037	1628
55°	608	2736	608
60°	698	349	698
65°	413	413	413
70°	510	510	510
75°	674	674	674
80°	0	1004	1004
85°	0	2001	2001

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°

Vertical Angle: 45°

Luminance: 33826 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	182.1	9.4
10°-20°	495.4	25.5
20°-30°	642.7	33.1
30°-40°	456.9	23.5
40°-50°	148.1	7.6
50°-60°	10.7	0.6
60°-70°	1.8	0.1
70°-80°	1.9	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°	1320.3	68.0
0°-40°	1777.2	91.6
0°-60°	1936.0	99.7
0°-90°	1941.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1941.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1943	1943	1943	1943	1943	
5°	1927	1929	1927	1927	1925	182
15°	1763	1768	1765	1768	1765	495
25°	1382	1419	1460	1426	1377	619
35°	591	699	910	707	611	378
45°	121	171	247	175	119	100
55°	4	4	16	4	4	4
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°	1943.1	1943.1	1943.1	1943.1	1943.1
2.5°	1943.1	1943.1	1941.3	1941.3	1943.1
5°	1926.9	1928.7	1926.9	1926.9	1925.1
7.5°	1905.3	1905.3	1903.5	1903.5	1903.5
10°	1865.6	1867.4	1867.4	1867.4	1869.2
12.5°	1822.3	1822.3	1822.3	1822.3	1822.3
15°	1762.9	1768.3	1764.7	1768.3	1764.7
17.5°	1703.4	1703.4	1701.6	1705.2	1701.6
20°	1625.9	1625.9	1627.7	1631.3	1631.3
22.5°	1523.1	1541.2	1548.4	1544.8	1526.7
25°	1382.5	1418.6	1460.0	1425.8	1377.1
27.5°	1205.9	1274.4	1369.9	1285.2	1209.5
30°	996.8	1099.5	1236.5	1103.1	1005.8
32.5°	780.5	899.5	1081.5	908.5	787.7
35°	591.2	699.4	910.3	706.6	611.1
37.5°	436.2	535.3	722.8	539.0	448.8
40°	311.8	383.9	529.9	391.1	311.8
42.5°	200.1	272.2	373.1	274.0	209.1
45°	120.8	171.2	246.9	174.8	119.0
47.5°	54.1	97.3	153.2	100.9	54.1
50°	9.0	39.7	86.5	41.5	10.8
52.5°	5.4	7.2	41.5	7.2	5.4
55°	3.6	3.6	16.2	3.6	3.6
57.5°	3.6	3.6	3.6	3.6	3.6
60°	3.6	1.8	1.8	1.8	3.6
62.5°	1.8	1.8	1.8	1.8	1.8
65°	1.8	1.8	1.8	1.8	1.8
67.5°	1.8	1.8	1.8	1.8	1.8
70°	1.8	1.8	1.8	1.8	1.8
72.5°	1.8	1.8	1.8	1.8	1.8
75°	1.8	1.8	1.8	1.8	1.8
77.5°	1.8	1.8	1.8	1.8	1.8
80°	0.0	1.8	1.8	1.8	1.8
82.5°	0.0	1.8	1.8	1.8	1.8
85°	0.0	0.0	1.8	1.8	1.8
87.5°	0.0	0.0	1.8	1.8	1.8
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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