

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: P837661

Luminaire Tested: HCSQ455D010-HM44560930-41SQMB

Issue Date: 5/17/2024

**Test Information**

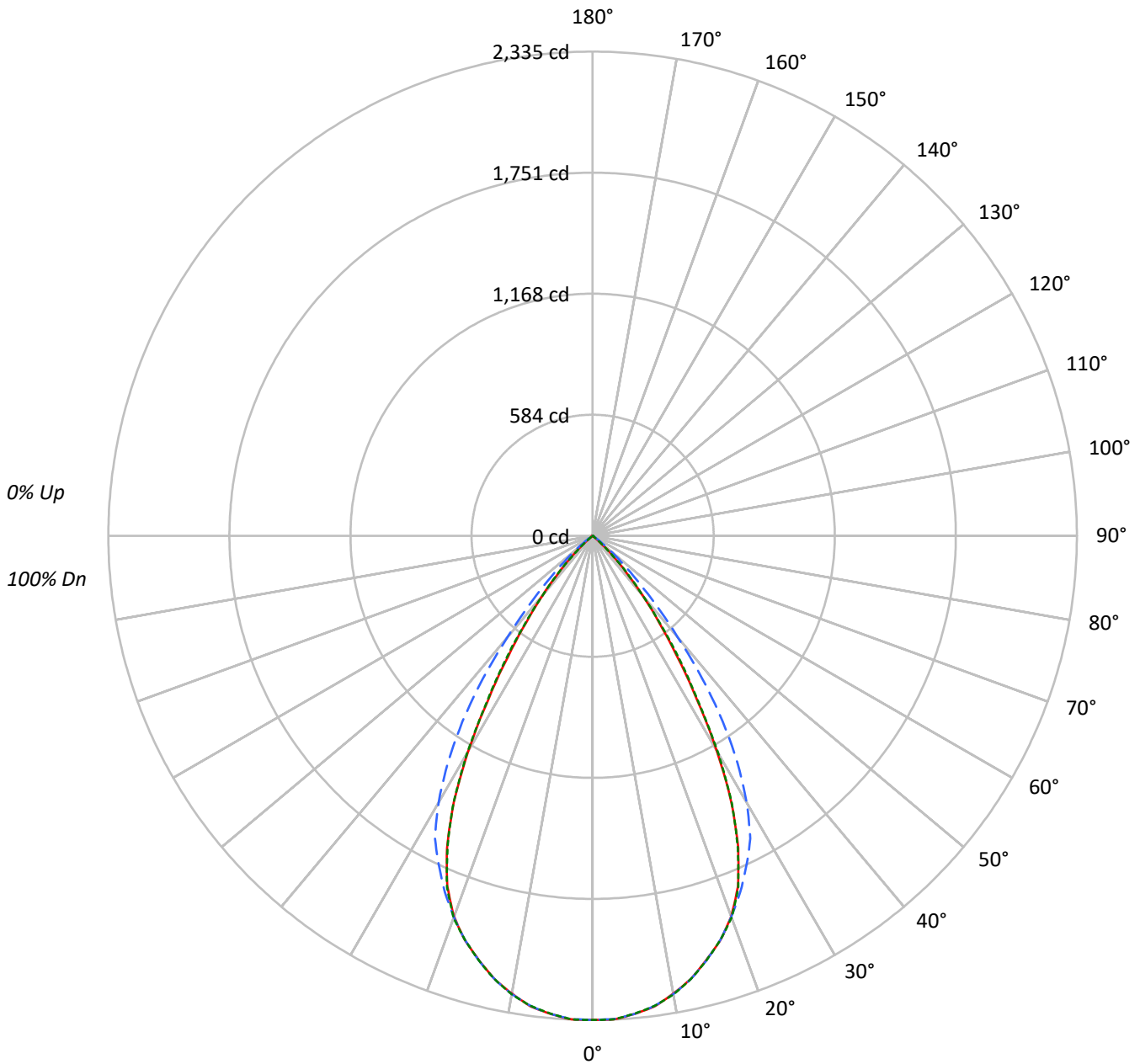
Test Method: LM-79-2019  
Report Number: P837661  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ455D010-HM44560930-41SQMB  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE BLACK TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2332.4 lumens  
Efficiency: N/A  
Efficacy: 43.2 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): 54  
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	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93					93			
2	108	103	99	95	105	101	97	94	98	95	92	95	92	90	92	90	88	87					87			
3	102	96	91	87	100	94	90	86	92	88	84	89	86	83	87	84	82	80					80			
4	97	89	83	79	95	88	83	79	86	81	78	84	80	77	82	79	76	74					74			
5	92	83	77	73	90	82	77	73	80	76	72	79	75	71	77	74	71	69					69			
6	87	78	72	67	85	77	71	67	76	70	67	74	70	66	73	69	66	64					64			
7	82	73	67	63	81	72	66	62	71	66	62	70	65	62	69	65	61	60					60			
8	78	69	62	58	77	68	62	58	67	62	58	66	61	58	65	61	57	56					56			
9	74	65	58	54	73	64	58	54	63	58	54	62	57	54	61	57	54	52					52			
10	71	61	55	51	70	60	55	51	60	54	51	59	54	51	58	54	50	49					49			

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

	0°	45°	90°
0°	226185	226185	226185
5°	225152	225152	224948
10°	220516	220732	220939
15°	212440	212661	212661
20°	201402	201629	202072
25°	177566	187528	176871
30°	133977	166205	135197
35°	84014	129356	86829
40°	47385	80531	47385
45°	19879	40649	19578
50°	1628	15674	1959
55°	726	3293	726
60°	833	426	833
65°	504	504	504
70°	623	623	623
75°	823	823	823
80°	0	1227	1227
85°	0	2445	2445

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°

Vertical Angle: 45°

Luminance: 40649 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	218.8	9.4
10°-20°	595.3	25.5
20°-30°	772.3	33.1
30°-40°	549.0	23.5
40°-50°	178.0	7.6
50°-60°	12.8	0.6
60°-70°	2.2	0.1
70°-80°	2.3	0.1
80°-90°	1.5	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°	1586.4	68.0
0°-40°	2135.4	91.6
0°-60°	2326.3	99.7
0°-90°	2332.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2332.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2335	2335	2335	2335	2335	
5°	2315	2318	2315	2315	2313	219
15°	2118	2125	2120	2125	2120	595
25°	1661	1705	1754	1713	1655	744
35°	710	840	1094	849	734	455
45°	145	206	297	210	143	121
55°	4	4	20	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°	2334.8	2334.8	2334.8	2334.8	2334.8
2.5°	2334.8	2334.8	2332.7	2332.7	2334.8
5°	2315.3	2317.5	2315.3	2315.3	2313.2
7.5°	2289.4	2289.4	2287.2	2287.2	2287.2
10°	2241.7	2243.9	2243.9	2243.9	2246.0
12.5°	2189.7	2189.7	2189.7	2189.7	2189.7
15°	2118.2	2124.7	2120.4	2124.7	2120.4
17.5°	2046.8	2046.8	2044.6	2048.9	2044.6
20°	1953.6	1953.6	1955.8	1960.1	1960.1
22.5°	1830.2	1851.8	1860.5	1856.2	1834.5
25°	1661.2	1704.6	1754.4	1713.2	1654.7
27.5°	1449.0	1531.3	1646.1	1544.3	1453.3
30°	1197.7	1321.2	1485.8	1325.5	1208.6
32.5°	937.8	1080.8	1299.5	1091.6	946.5
35°	710.4	840.4	1093.8	849.0	734.2
37.5°	524.1	643.3	868.5	647.6	539.3
40°	374.7	461.3	636.8	470.0	374.7
42.5°	240.4	327.1	448.3	329.2	251.2
45°	145.1	205.8	296.7	210.1	142.9
47.5°	65.0	117.0	184.1	121.3	65.0
50°	10.8	47.6	104.0	49.8	13.0
52.5°	6.5	8.7	49.8	8.7	6.5
55°	4.3	4.3	19.5	4.3	4.3
57.5°	4.3	4.3	4.3	4.3	4.3
60°	4.3	2.2	2.2	2.2	4.3
62.5°	2.2	2.2	2.2	2.2	2.2
65°	2.2	2.2	2.2	2.2	2.2
67.5°	2.2	2.2	2.2	2.2	2.2
70°	2.2	2.2	2.2	2.2	2.2
72.5°	2.2	2.2	2.2	2.2	2.2
75°	2.2	2.2	2.2	2.2	2.2
77.5°	2.2	2.2	2.2	2.2	2.2
80°	0.0	2.2	2.2	2.2	2.2
82.5°	0.0	2.2	2.2	2.2	2.2
85°	0.0	0.0	2.2	2.2	2.2
87.5°	0.0	0.0	2.2	2.2	2.2
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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