

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: P837628

Luminaire Tested: HCSQ450D010-HM44560940-41SQC

Issue Date: 5/17/2024

**Test Information**

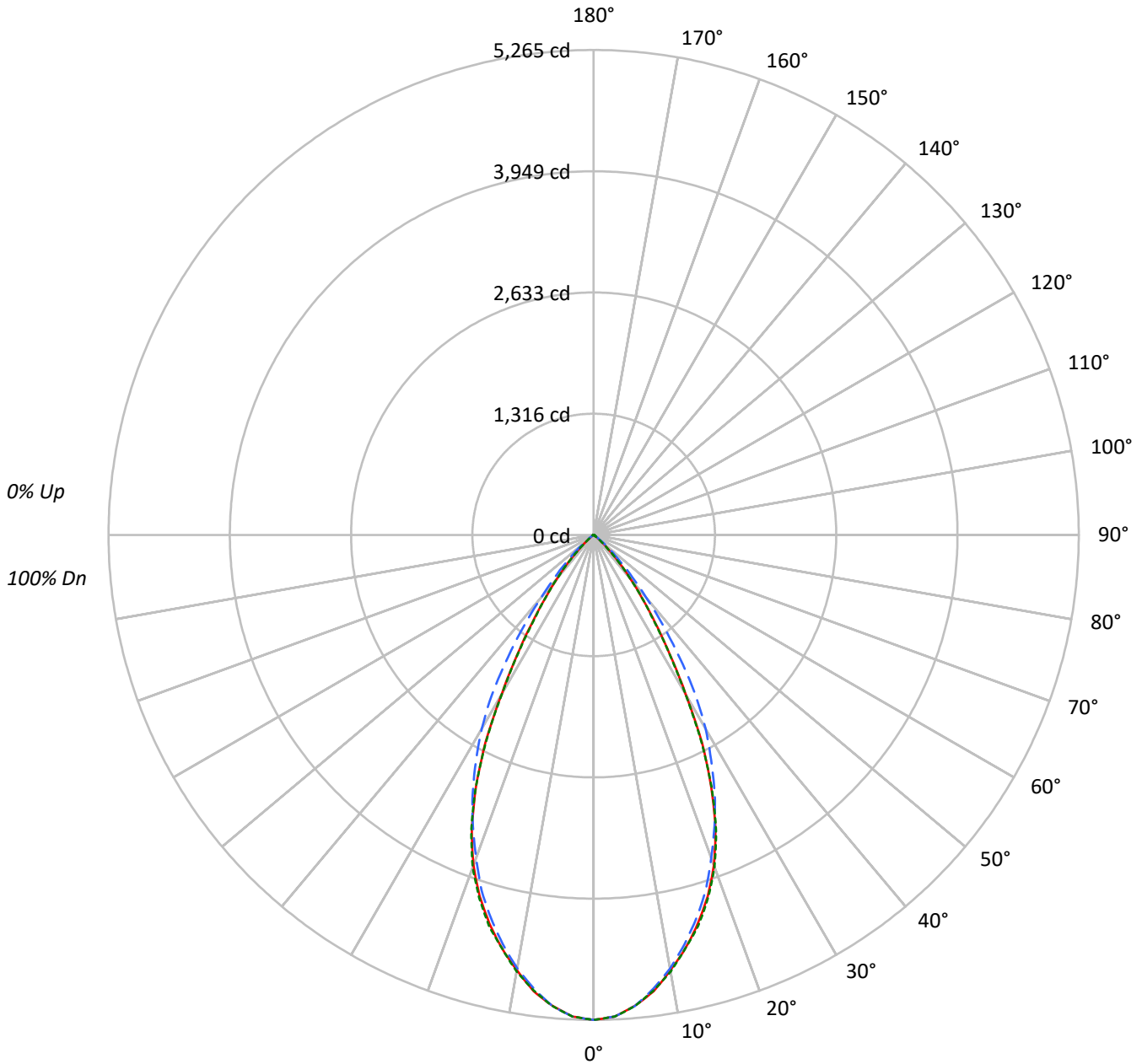
Test Method: LM-79-2019  
Report Number: P837628  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-1)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560940-41SQC  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, SPECULAR CLEAR TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4255.0 lumens  
Efficiency: N/A  
Efficacy: 85.6 lumens/watt  
Spacing Criteria (0/90/45): 0.85 / 0.85 / 0.87  
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	114	111	108	106	111	109	106	104	105	103	101	101	99	98	97	96	95	94								
2	108	103	99	96	106	101	98	95	98	95	93	95	93	91	93	91	89	87								
3	103	96	91	87	101	95	90	87	92	89	85	90	87	84	88	85	83	81								
4	98	90	85	80	96	89	84	80	87	82	79	85	81	78	83	80	77	76								
5	93	84	79	74	91	83	78	74	82	77	73	80	76	73	78	75	72	71								
6	88	79	73	69	87	79	73	69	77	72	68	76	71	68	74	70	68	66								
7	84	75	69	65	82	74	68	64	73	68	64	71	67	64	70	66	63	62								
8	80	70	64	60	79	70	64	60	69	64	60	68	63	60	67	63	60	58								
9	76	67	61	57	75	66	60	57	65	60	56	64	60	56	63	59	56	55								
10	73	63	57	53	72	63	57	53	62	57	53	61	56	53	60	56	53	52								

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

	0°	45°	90°
0°	510078	510078	510078
5°	499142	499356	499356
10°	472126	470021	473385
15°	438059	432061	440416
20°	393237	384422	395659
25°	322979	332343	324123
30°	223266	271545	221588
35°	137481	191811	134193
40°	77559	112146	77015
45°	35429	56212	33963
50°	9013	22546	9344
55°	4324	6857	3969
60°	2906	2480	3313
65°	2453	1948	2453
70°	1813	1813	2408
75°	1609	1609	2396
80°	2399	2399	2399
85°	2334	4780	4780

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 56212 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	479.0	11.3
10°-20°	1209.7	28.4
20°-30°	1382.8	32.5
30°-40°	858.4	20.2
40°-50°	270.5	6.4
50°-60°	35.0	0.8
60°-70°	10.3	0.2
70°-80°	5.5	0.1
80°-90°	3.7	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°	3071.5	72.2
0°-40°	3929.9	92.4
0°-60°	4235.4	99.5
0°-90°	4255.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4255.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5265	5265	5265	5265	5265	
5°	5133	5129	5135	5131	5135	480
15°	4368	4336	4308	4336	4391	1218
25°	3022	3064	3109	3064	3032	1356
35°	1162	1342	1622	1310	1135	747
45°	259	310	410	312	248	218
55°	26	26	41	26	24	25
65°	11	11	8	11	11	11
75°	4	4	4	4	6	5
85°	2	4	4	4	4	2
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5265.3	5265.3	5265.3	5265.3	5265.3
2.5°	5233.3	5237.5	5233.3	5241.8	5233.3
5°	5132.8	5128.6	5135.0	5130.7	5135.0
7.5°	4996.1	4970.4	4968.3	4985.4	4987.5
10°	4799.5	4793.1	4778.1	4793.1	4812.3
12.5°	4598.6	4573.0	4551.6	4581.5	4598.6
15°	4367.8	4335.8	4308.0	4335.8	4391.3
17.5°	4113.5	4068.7	4045.2	4077.2	4130.6
20°	3814.4	3767.4	3728.9	3756.7	3837.9
22.5°	3455.4	3451.1	3425.4	3440.4	3470.3
25°	3021.6	3064.3	3109.2	3064.3	3032.3
27.5°	2545.0	2660.4	2763.0	2628.4	2525.8
30°	1995.9	2171.1	2427.5	2158.3	1980.9
32.5°	1542.8	1726.6	2053.6	1703.1	1530.0
35°	1162.5	1342.0	1621.9	1309.9	1134.7
37.5°	854.8	989.4	1233.0	980.8	854.8
40°	613.3	700.9	886.8	698.8	609.0
42.5°	425.2	482.9	619.7	478.7	412.4
45°	258.6	309.9	410.3	312.0	247.9
47.5°	136.8	196.6	258.6	188.0	136.8
50°	59.8	104.7	149.6	102.6	62.0
52.5°	32.1	44.9	81.2	44.9	32.1
55°	25.6	25.6	40.6	25.6	23.5
57.5°	19.2	19.2	21.4	19.2	19.2
60°	15.0	15.0	12.8	15.0	17.1
62.5°	12.8	12.8	10.7	12.8	12.8
65°	10.7	10.7	8.5	10.7	10.7
67.5°	8.5	8.5	8.5	8.5	8.5
70°	6.4	6.4	6.4	8.5	8.5
72.5°	6.4	6.4	6.4	6.4	6.4
75°	4.3	4.3	4.3	4.3	6.4
77.5°	4.3	4.3	4.3	4.3	4.3
80°	4.3	4.3	4.3	4.3	4.3
82.5°	2.1	4.3	4.3	4.3	4.3
85°	2.1	4.3	4.3	4.3	4.3
87.5°	2.1	2.1	4.3	4.3	4.3
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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