

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: P837619

Luminaire Tested: HCSQ450D010-HM44560930-41SQH

Issue Date: 5/17/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P837619  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-2)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560930-41SQH  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: -

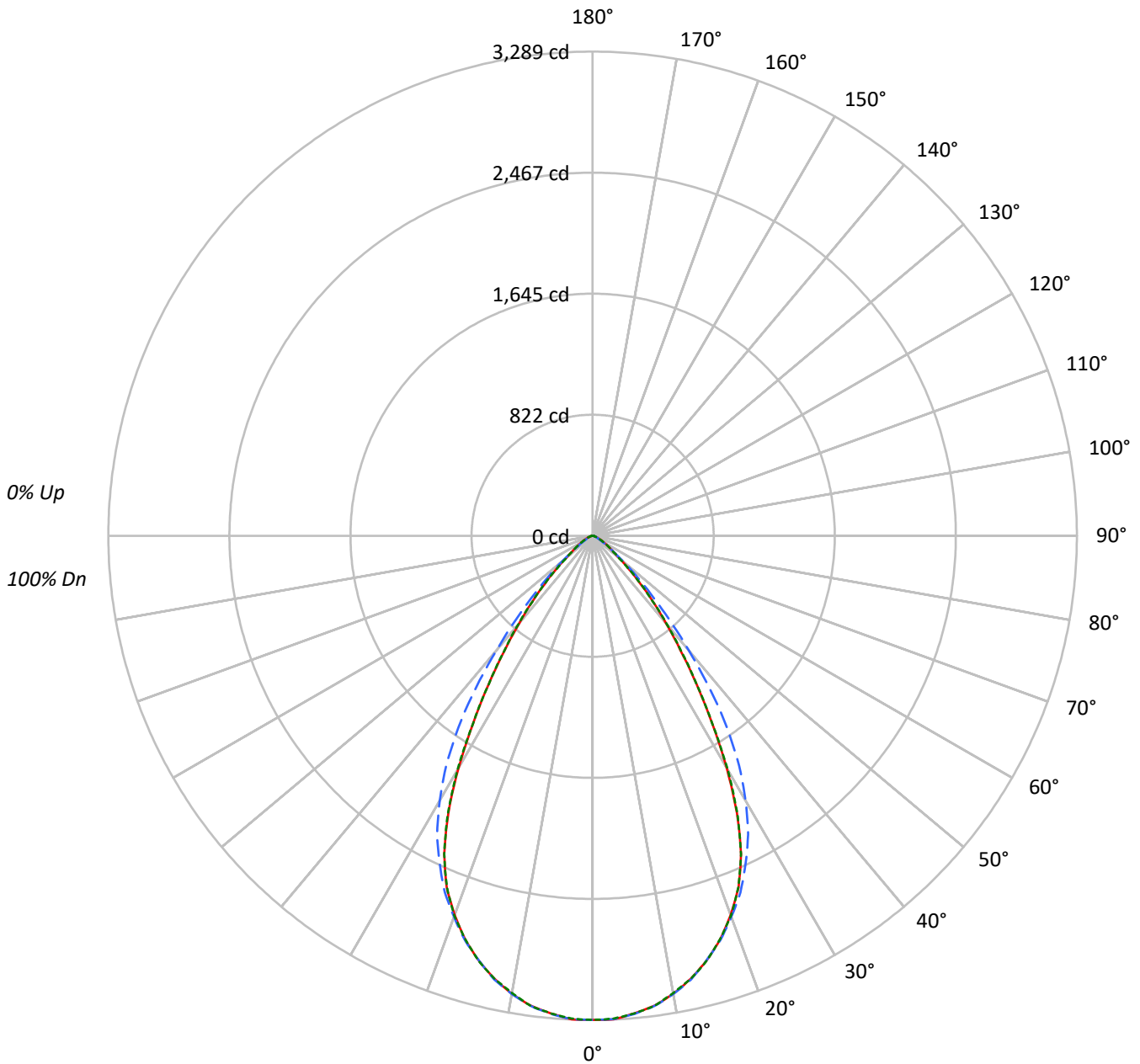
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3697.2 lumens  
Efficiency: N/A  
Efficacy: 74.4 lumens/watt  
Spacing Criteria (0/90/45): 0.98 / 0.98 / 1.01  
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	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92																			
2	107	101	97	93	104	100	95	92	96	93	90	93	90	88	90	88	86	85																			
3	101	93	88	84	98	92	87	83	89	85	82	87	83	80	85	82	79	77																			
4	95	87	80	76	93	85	80	75	83	78	74	81	77	74	79	76	73	71																			
5	89	80	74	69	88	79	73	69	77	72	68	76	71	68	74	70	67	65																			
6	84	75	68	63	83	74	68	63	72	67	63	71	66	62	69	65	62	60																			
7	80	70	63	59	78	69	63	58	68	62	58	66	61	58	65	61	57	56																			
8	75	65	59	54	74	65	58	54	63	58	54	62	57	54	61	57	53	52																			
9	72	61	55	50	70	61	54	50	60	54	50	59	54	50	58	53	50	48																			
10	68	57	51	47	67	57	51	47	56	51	47	55	50	47	55	50	46	45																			

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

	0°	45°	90°
0°	318623	318623	318623
5°	316680	317079	316680
10°	310750	310947	310150
15°	299715	299504	299916
20°	282525	283989	283154
25°	254933	262747	254933
30°	203611	232472	205211
35°	145357	188121	145594
40°	98134	127941	99677
45°	62350	75708	62624
50°	35523	40421	34287
55°	23325	19558	22987
60°	16139	11412	15752
65°	11186	8390	11186
70°	8044	6316	8044
75°	5315	5315	5315
80°	3403	4519	4519
85°	4557	4557	4557

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 75708 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	308.1	8.3
10°-20°	837.8	22.7
20°-30°	1097.0	29.7
30°-40°	862.2	23.3
40°-50°	402.7	10.9
50°-60°	124.8	3.4
60°-70°	44.5	1.2
70°-80°	15.7	0.4
80°-90°	4.3	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°	2242.9	60.7
0°-40°	3105.1	84.0
0°-60°	3632.6	98.3
0°-90°	3697.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3697.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3289	3289	3289	3289	3289	
5°	3256	3258	3261	3265	3256	308
15°	2988	2988	2986	2988	2990	837
25°	2385	2418	2458	2420	2385	1072
35°	1229	1341	1591	1357	1231	775
45°	455	510	553	500	457	362
55°	138	130	116	128	136	129
65°	49	45	37	43	49	51
75°	14	14	14	14	14	16
85°	4	4	4	4	4	4
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3289.0	3289.0	3289.0	3289.0	3289.0
2.5°	3289.0	3285.0	3287.0	3282.9	3282.9
5°	3256.5	3258.5	3260.6	3264.6	3256.5
7.5°	3219.9	3224.0	3222.0	3222.0	3222.0
10°	3159.0	3161.0	3161.0	3161.0	3152.9
12.5°	3081.8	3085.9	3087.9	3081.8	3081.8
15°	2988.4	2988.4	2986.3	2988.4	2990.4
17.5°	2876.6	2882.7	2882.7	2876.6	2874.6
20°	2740.5	2750.7	2754.7	2746.6	2746.6
22.5°	2588.1	2598.3	2622.7	2602.4	2586.1
25°	2385.0	2417.5	2458.1	2419.5	2385.0
27.5°	2122.9	2194.0	2287.5	2206.2	2129.0
30°	1820.2	1936.0	2078.2	1942.1	1834.5
32.5°	1511.4	1641.5	1850.7	1651.6	1511.4
35°	1229.1	1340.8	1590.7	1357.0	1231.1
37.5°	977.2	1084.8	1304.2	1097.0	991.4
40°	776.0	863.4	1011.7	861.4	788.2
42.5°	605.4	668.4	765.9	666.3	603.4
45°	455.1	509.9	552.6	499.8	457.1
47.5°	335.2	371.8	396.1	365.7	327.1
50°	235.7	262.1	268.2	256.0	227.5
52.5°	176.7	176.7	178.8	174.7	172.7
55°	138.1	130.0	115.8	128.0	136.1
57.5°	107.7	99.5	81.3	95.5	105.6
60°	83.3	75.2	58.9	73.1	81.3
62.5°	65.0	56.9	46.7	56.9	63.0
65°	48.8	44.7	36.6	42.7	48.8
67.5°	36.6	32.5	28.4	32.5	36.6
70°	28.4	26.4	22.3	24.4	28.4
72.5°	20.3	18.3	18.3	18.3	20.3
75°	14.2	14.2	14.2	14.2	14.2
77.5°	10.2	10.2	10.2	10.2	10.2
80°	6.1	6.1	8.1	8.1	8.1
82.5°	4.1	4.1	6.1	6.1	6.1
85°	4.1	4.1	4.1	4.1	4.1
87.5°	2.0	2.0	2.0	4.1	4.1
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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