

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: P837602

Luminaire Tested: HCSQ450D010-HM44560830-41SQMW

Issue Date: 5/17/2024



**Test Information**

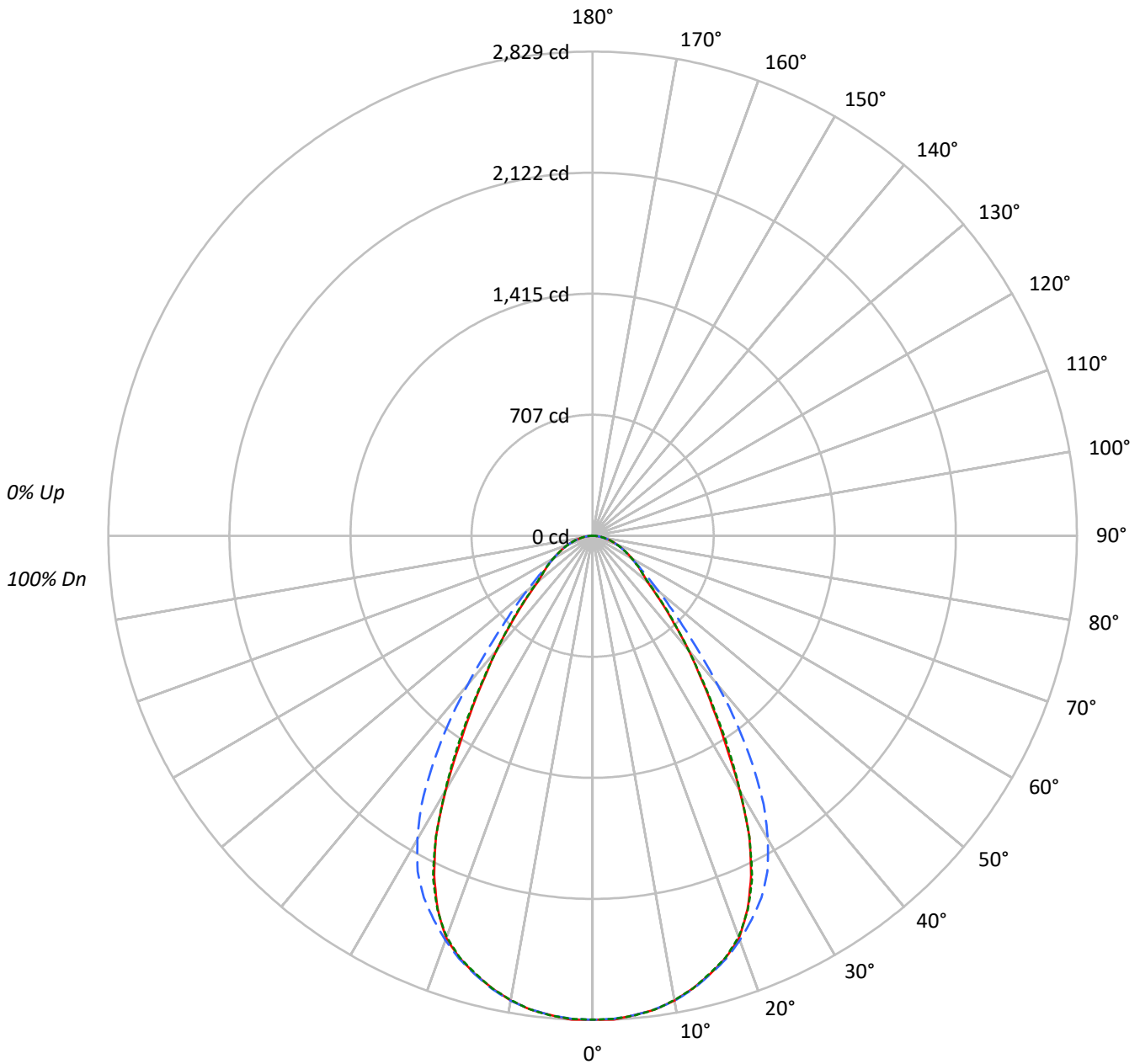
Test Method: LM-79-2019  
Report Number: P837602  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-3)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560830-41SQMW  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4102.5 lumens  
Efficiency: N/A  
Efficacy: 82.5 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 (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					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	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°	273867	273867	273867
5°	273415	273415	273629
10°	271176	271393	270960
15°	265896	266117	265455
20°	257928	259288	257020
25°	234090	249343	235725
30°	192146	229004	192884
35°	144435	192225	146516
40°	109997	143332	109718
45°	82160	101711	83654
50°	62560	75808	63887
55°	56395	59350	56395
60°	51499	51073	51073
65°	46831	46831	46831
70°	43563	42940	42940
75°	40274	39451	40274
80°	36765	35537	36765
85°	31789	31789	31789

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 101711 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	266.6	6.5
10°-20°	746.4	18.2
20°-30°	1026.5	25.0
30°-40°	873.9	21.3
40°-50°	527.8	12.9
50°-60°	311.1	7.6
60°-70°	204.0	5.0
70°-80°	113.1	2.8
80°-90°	33.1	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°	2039.5	49.7
0°-40°	2913.4	71.0
0°-60°	3752.3	91.5
0°-90°	4102.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4102.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2827	2827	2827	2827	2827	
5°	2812	2814	2812	2809	2814	267
15°	2651	2658	2653	2651	2647	746
25°	2190	2258	2333	2262	2205	990
35°	1221	1344	1625	1382	1239	773
45°	600	663	742	670	611	471
55°	334	340	351	340	334	300
65°	204	206	204	204	204	205
75°	108	108	105	105	108	114
85°	29	29	29	29	29	33
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2827.0	2827.0	2827.0	2827.0	2827.0
2.5°	2829.2	2822.6	2824.8	2822.6	2824.8
5°	2811.6	2813.8	2811.6	2809.4	2813.8
7.5°	2791.8	2789.6	2789.6	2787.4	2791.8
10°	2756.7	2752.3	2758.9	2754.5	2754.5
12.5°	2708.3	2714.9	2712.7	2712.7	2708.3
15°	2651.2	2657.8	2653.4	2651.2	2646.8
17.5°	2585.3	2589.7	2591.9	2583.1	2583.1
20°	2501.9	2510.7	2515.1	2499.7	2493.1
22.5°	2363.5	2403.0	2427.2	2400.8	2367.9
25°	2190.0	2258.1	2332.7	2262.4	2205.3
27.5°	1981.3	2077.9	2211.9	2093.3	1981.3
30°	1717.7	1860.5	2047.2	1875.9	1724.3
32.5°	1445.3	1596.9	1858.3	1623.3	1476.1
35°	1221.3	1344.3	1625.4	1381.6	1238.9
37.5°	1028.0	1133.4	1381.6	1157.6	1039.0
40°	869.8	953.3	1133.4	964.3	867.6
42.5°	718.3	797.3	918.2	808.3	727.1
45°	599.7	663.4	742.4	669.9	610.6
47.5°	498.6	551.3	608.4	551.3	505.2
50°	415.1	456.9	503.0	456.9	423.9
52.5°	371.2	384.4	415.1	386.6	371.2
55°	333.9	340.5	351.4	340.5	333.9
57.5°	298.7	303.1	300.9	300.9	298.7
60°	265.8	268.0	263.6	265.8	263.6
62.5°	235.0	235.0	230.6	235.0	232.8
65°	204.3	206.5	204.3	204.3	204.3
67.5°	177.9	177.9	175.7	177.9	177.9
70°	153.8	153.8	151.6	153.8	151.6
72.5°	129.6	129.6	127.4	127.4	127.4
75°	107.6	107.6	105.4	105.4	107.6
77.5°	85.7	85.7	83.5	85.7	85.7
80°	65.9	65.9	63.7	65.9	65.9
82.5°	46.1	46.1	46.1	48.3	48.3
85°	28.6	28.6	28.6	28.6	28.6
87.5°	13.2	13.2	13.2	13.2	15.4
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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