

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: P837501

Luminaire Tested: HCSQ435D010-HM43040930-41SQMB

Issue Date: 5/17/2024



**Test Information**

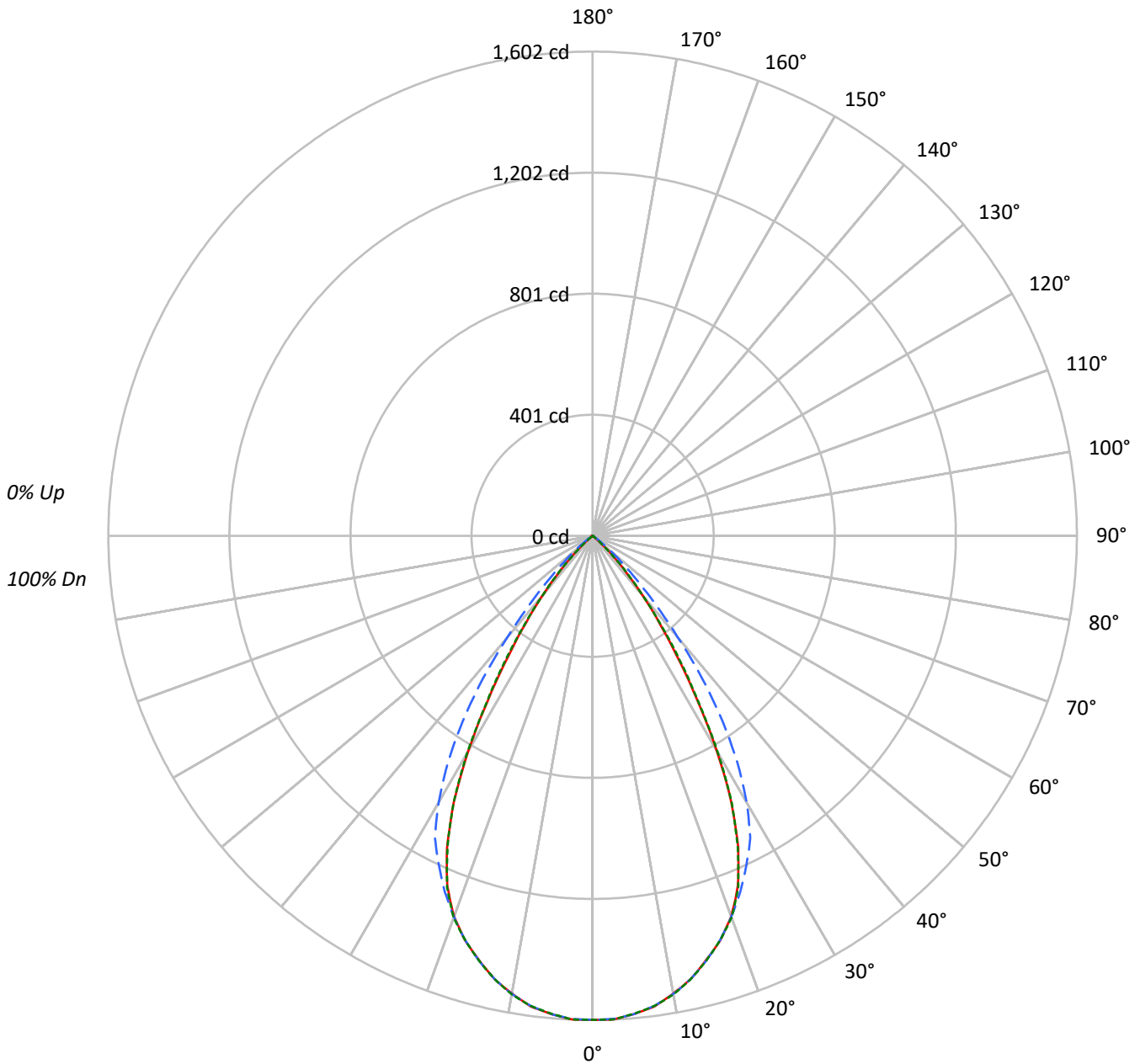
Test Method: LM-79-2019  
Report Number: P837501  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ435D010-HM43040930-41SQMB  
Description: 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: 1599.9 lumens  
Efficiency: N/A  
Efficacy: 47.1 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): 34  
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									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°	155156	155156	155156
5°	154445	154445	154299
10°	151263	151411	151558
15°	145725	145876	145876
20°	138154	138309	138608
25°	121801	128632	121331
30°	91906	114010	92734
35°	57630	88733	59557
40°	32501	55239	32501
45°	13632	27880	13440
50°	1115	10746	1341
55°	507	2263	507
60°	581	291	581
65°	344	344	344
70°	425	425	425
75°	561	561	561
80°	0	837	837
85°	0	1667	1667

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 27880 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	150.1	9.4
10°-20°	408.3	25.5
20°-30°	529.7	33.1
30°-40°	376.6	23.5
40°-50°	122.1	7.6
50°-60°	8.8	0.6
60°-70°	1.5	0.1
70°-80°	1.6	0.1
80°-90°	1.0	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°	1088.2	68.0
0°-40°	1464.8	91.6
0°-60°	1595.7	99.7
0°-90°	1599.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1599.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1602	1602	1602	1602	1602	
5°	1588	1590	1588	1588	1587	150
15°	1453	1458	1454	1458	1454	408
25°	1140	1169	1203	1175	1135	510
35°	487	576	750	582	504	312
45°	100	141	204	144	98	83
55°	3	3	13	3	3	3
65°	2	2	2	2	2	2
75°	2	2	2	2	2	1
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°	1601.6	1601.6	1601.6	1601.6	1601.6
2.5°	1601.6	1601.6	1600.1	1600.1	1601.6
5°	1588.2	1589.7	1588.2	1588.2	1586.7
7.5°	1570.4	1570.4	1568.9	1568.9	1568.9
10°	1537.7	1539.2	1539.2	1539.2	1540.7
12.5°	1502.0	1502.0	1502.0	1502.0	1502.0
15°	1453.0	1457.5	1454.5	1457.5	1454.5
17.5°	1404.0	1404.0	1402.5	1405.5	1402.5
20°	1340.1	1340.1	1341.6	1344.5	1344.5
22.5°	1255.4	1270.3	1276.2	1273.2	1258.4
25°	1139.5	1169.2	1203.4	1175.2	1135.1
27.5°	993.9	1050.4	1129.1	1059.3	996.9
30°	821.6	906.3	1019.2	909.2	829.0
32.5°	643.3	741.4	891.4	748.8	649.2
35°	487.3	576.4	750.3	582.4	503.6
37.5°	359.5	441.2	595.8	444.2	369.9
40°	257.0	316.5	436.8	322.4	257.0
42.5°	164.9	224.3	307.5	225.8	172.3
45°	99.5	141.1	203.5	144.1	98.1
47.5°	44.6	80.2	126.3	83.2	44.6
50°	7.4	32.7	71.3	34.2	8.9
52.5°	4.5	5.9	34.2	5.9	4.5
55°	3.0	3.0	13.4	3.0	3.0
57.5°	3.0	3.0	3.0	3.0	3.0
60°	3.0	1.5	1.5	1.5	3.0
62.5°	1.5	1.5	1.5	1.5	1.5
65°	1.5	1.5	1.5	1.5	1.5
67.5°	1.5	1.5	1.5	1.5	1.5
70°	1.5	1.5	1.5	1.5	1.5
72.5°	1.5	1.5	1.5	1.5	1.5
75°	1.5	1.5	1.5	1.5	1.5
77.5°	1.5	1.5	1.5	1.5	1.5
80°	0.0	1.5	1.5	1.5	1.5
82.5°	0.0	1.5	1.5	1.5	1.5
85°	0.0	0.0	1.5	1.5	1.5
87.5°	0.0	0.0	1.5	1.5	1.5
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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