

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: P837301

Luminaire Tested: HCSQ410D010-HM40525930-41SQMB

Issue Date: 5/17/2024



**Test Information**

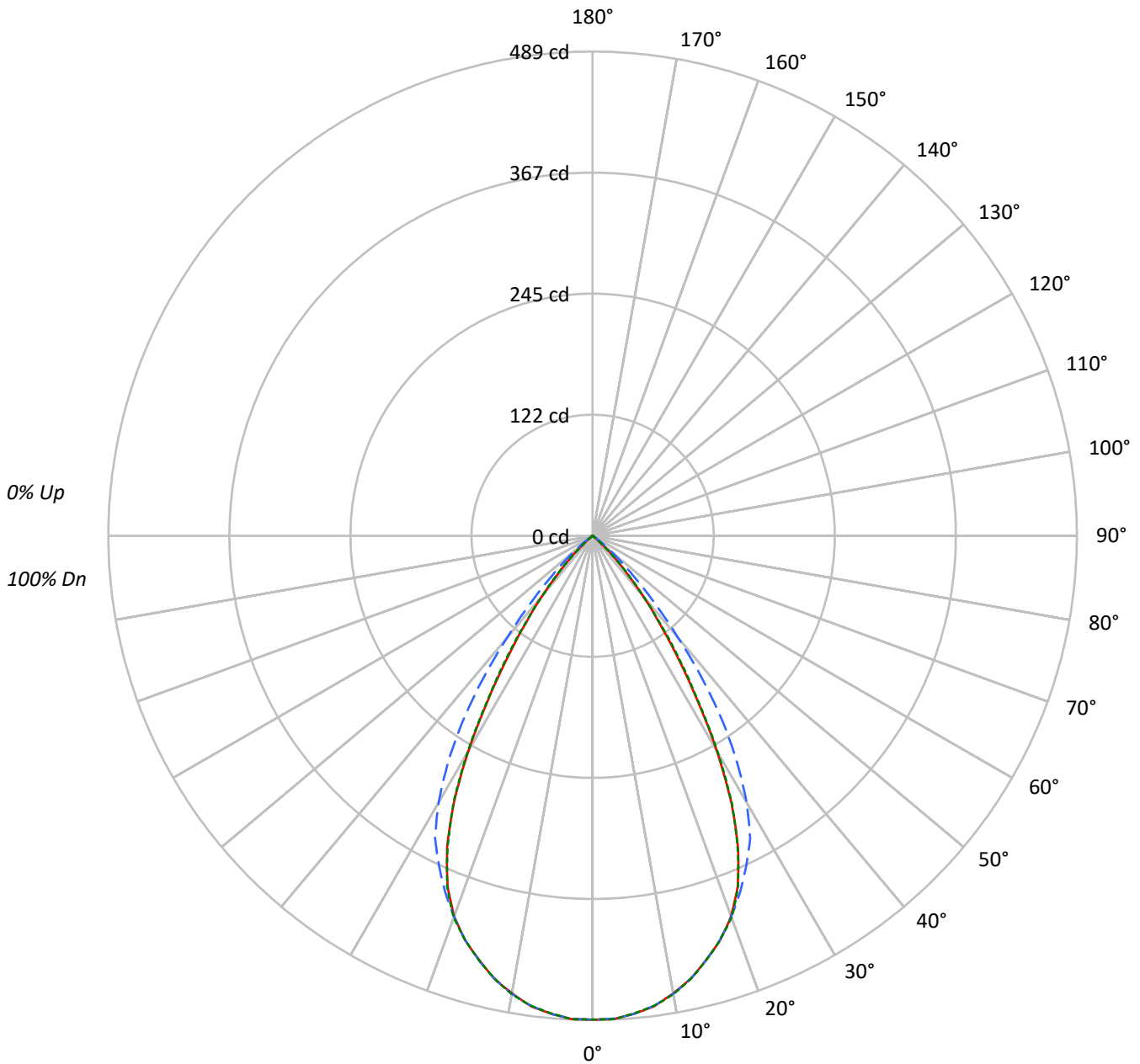
Test Method: LM-79-2019  
Report Number: P837301  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ410D010-HM40525930-41SQMB  
Description: 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: 488.2 lumens  
Efficiency: N/A  
Efficacy: 49.3 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): 9.9  
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	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	86	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°	47333	47333	47333
5°	47115	47115	47077
10°	46145	46194	46234
15°	44460	44500	44500
20°	42144	42196	42289
25°	37155	39239	37016
30°	28033	34778	28290
35°	17586	27070	18165
40°	9915	16857	9915
45°	4165	8508	4096
50°	347	3286	407
55°	152	692	152
60°	174	97	174
65°	115	115	115
70°	142	142	142
75°	187	187	187
80°	0	279	279
85°	0	556	556

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 8508 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	45.8	9.4
10°-20°	124.6	25.5
20°-30°	161.6	33.1
30°-40°	114.9	23.5
40°-50°	37.3	7.6
50°-60°	2.7	0.6
60°-70°	0.5	0.1
70°-80°	0.5	0.1
80°-90°	0.3	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°	332.0	68.0
0°-40°	446.9	91.5
0°-60°	486.8	99.7
0°-90°	488.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	488.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	489	489	489	489	489	
5°	484	485	484	484	484	46
15°	443	445	444	445	444	124
25°	348	357	367	358	346	156
35°	149	176	229	178	154	95
45°	30	43	62	44	30	25
55°	1	1	4	1	1	1
65°	0	0	0	0	0	1
75°	0	0	0	0	0	0
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	488.6	488.6	488.6	488.6	488.6
2.5°	488.6	488.6	488.1	488.1	488.6
5°	484.5	485.0	484.5	484.5	484.1
7.5°	479.1	479.1	478.6	478.6	478.6
10°	469.1	469.6	469.6	469.6	470.0
12.5°	458.2	458.2	458.2	458.2	458.2
15°	443.3	444.6	443.7	444.6	443.7
17.5°	428.3	428.3	427.9	428.8	427.9
20°	408.8	408.8	409.3	410.2	410.2
22.5°	383.0	387.5	389.3	388.4	383.9
25°	347.6	356.7	367.1	358.5	346.3
27.5°	303.2	320.4	344.5	323.2	304.1
30°	250.6	276.5	310.9	277.4	252.9
32.5°	196.3	226.2	271.9	228.4	198.1
35°	148.7	175.9	228.9	177.7	153.6
37.5°	109.7	134.6	181.8	135.5	112.9
40°	78.4	96.5	133.3	98.4	78.4
42.5°	50.3	68.4	93.8	68.9	52.6
45°	30.4	43.1	62.1	44.0	29.9
47.5°	13.6	24.5	38.5	25.4	13.6
50°	2.3	10.0	21.8	10.4	2.7
52.5°	1.4	1.8	10.4	1.8	1.4
55°	0.9	0.9	4.1	0.9	0.9
57.5°	0.9	0.9	0.9	0.9	0.9
60°	0.9	0.5	0.5	0.5	0.9
62.5°	0.5	0.5	0.5	0.5	0.5
65°	0.5	0.5	0.5	0.5	0.5
67.5°	0.5	0.5	0.5	0.5	0.5
70°	0.5	0.5	0.5	0.5	0.5
72.5°	0.5	0.5	0.5	0.5	0.5
75°	0.5	0.5	0.5	0.5	0.5
77.5°	0.5	0.5	0.5	0.5	0.5
80°	0.0	0.5	0.5	0.5	0.5
82.5°	0.0	0.5	0.5	0.5	0.5
85°	0.0	0.0	0.5	0.5	0.5
87.5°	0.0	0.0	0.5	0.5	0.5
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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(END OF REPORT)