

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: P837510

Luminaire Tested: HCSQ435D010-HM43040940-41SQLWW

Issue Date: 5/17/2024

**Test Information**

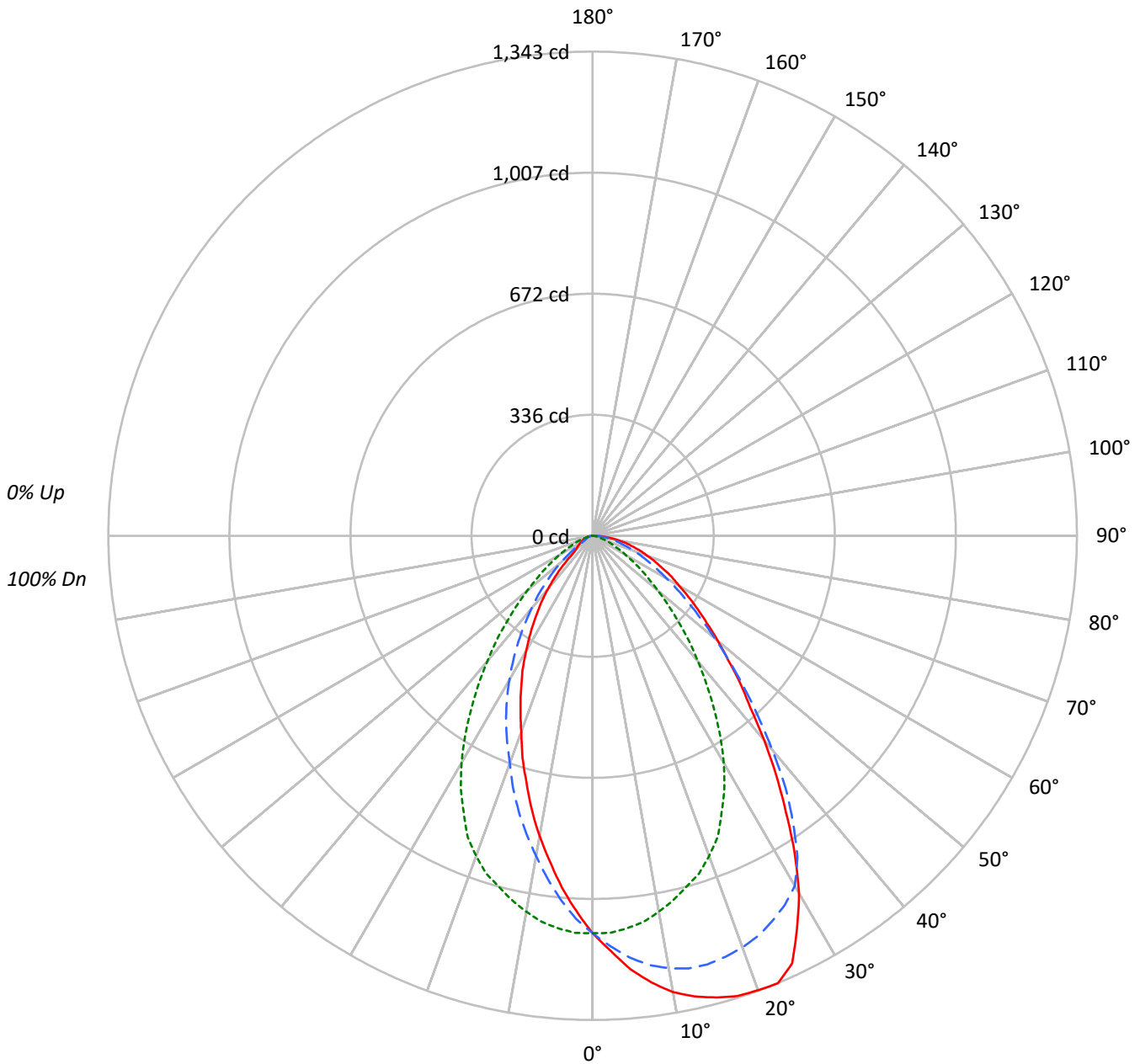
Test Method: LM-79-2019  
Report Number: P837510  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-5)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ435D010-HM43040940-41SQLWW  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1783.2 lumens  
Efficiency: N/A  
Efficacy: 52.4 lumens/watt  
Spacing Criteria (0/90/45): 1.07 / 1.04 / 1.12  
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 (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					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	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89								
2	103	97	91	87	101	95	90	86	92	87	84	88	85	82	86	83	80	78								
3	96	87	81	76	94	86	80	75	83	78	74	81	76	72	78	74	71	69								
4	89	79	72	67	87	78	71	66	76	70	65	74	69	64	72	67	64	62								
5	83	72	65	59	81	71	64	59	69	63	58	68	62	58	66	61	57	55								
6	78	66	59	53	76	66	58	53	64	57	53	62	57	52	61	56	52	50								
7	73	61	54	48	71	60	53	48	59	53	48	58	52	48	56	51	47	45								
8	68	57	49	44	67	56	49	44	55	48	44	54	48	43	52	47	43	42								
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38								
10	61	49	42	37	60	48	42	37	48	41	37	47	41	37	46	41	37	35								

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

	0°	45°	90°	135°	180°
0°	106795	106795	106795	106795	106795
5°	117395	114195	106289	98539	95194
10°	126445	119824	104134	88749	83221
15°	132988	123420	100995	79352	71047
20°	138309	125258	97371	69155	59649
25°	139898	126024	90429	60671	50142
30°	128037	125420	81335	51602	41109
35°	110399	114467	69349	42350	32546
40°	93531	97882	57350	33424	24319
45°	79270	81188	45841	24852	15632
50°	68348	66690	35583	16729	9419
55°	60212	54925	27209	9239	8445
60°	53630	46055	20305	5154	7576
65°	49100	39427	15060	4653	6808
70°	45631	34103	11075	4419	6656
75°	42707	29832	7598	4080	5839
80°	41004	26165	5244	4351	5244
85°	40015	22564	3446	3446	3446

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°  
 Vertical Angle: 45°  
 Luminance: 82476 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	103.4	5.8
10°-20°	284.6	16.0
20°-30°	397.9	22.3
30°-40°	389.0	21.8
40°-50°	282.2	15.8
50°-60°	170.1	9.5
60°-70°	95.6	5.4
70°-80°	47.4	2.7
80°-90°	13.0	0.7
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°	785.9	44.1
0°-40°	1174.8	65.9
0°-60°	1627.2	91.3
0°-90°	1783.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1783.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1102	1102	1102	1102	1102	
5°	1207	1174	1093	1013	979	117
15°	1326	1231	1007	791	708	375
25°	1309	1179	846	568	469	590
35°	934	968	586	358	275	584
45°	579	593	335	181	114	449
55°	356	325	161	55	50	321
65°	214	172	66	20	30	215
75°	114	80	20	11	16	123
85°	36	20	3	3	3	40
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	1102.4	1102.4	1102.4	1102.4	1102.4	1102.4	1102.4	1102.4	1102.4
2.5°	1152.4	1149.3	1139.9	1121.2	1102.4	1080.5	1063.3	1050.8	1041.4
5°	1207.2	1200.9	1174.3	1135.2	1093.0	1050.8	1013.3	991.4	978.9
7.5°	1249.4	1238.4	1200.9	1146.2	1080.5	1016.4	958.5	924.1	910.1
10°	1285.4	1266.6	1218.1	1144.6	1058.6	974.2	902.2	861.6	846.0
12.5°	1308.8	1288.5	1229.1	1143.1	1035.2	932.0	847.5	794.4	778.7
15°	1326.0	1301.0	1230.6	1130.5	1007.0	888.2	791.2	728.7	708.4
17.5°	1338.5	1304.1	1224.4	1116.5	982.0	842.8	733.4	666.1	645.8
20°	1341.6	1304.1	1215.0	1096.1	944.5	797.5	670.8	603.6	578.6
22.5°	1343.2	1299.4	1200.9	1071.1	905.4	745.9	619.2	548.9	522.3
25°	1308.8	1283.8	1179.0	1028.9	846.0	689.6	567.6	491.0	469.1
27.5°	1227.5	1225.9	1154.0	972.6	791.2	628.6	514.5	441.0	420.6
30°	1144.6	1146.2	1121.2	910.1	727.1	570.7	461.3	389.4	367.5
32.5°	1043.0	1058.6	1057.1	839.7	658.3	516.0	409.7	342.4	320.6
35°	933.5	961.7	967.9	760.0	586.4	453.5	358.1	297.1	275.2
37.5°	835.0	863.2	877.2	689.6	519.1	398.7	309.6	256.4	234.6
40°	739.6	763.1	774.0	608.3	453.5	342.4	264.3	214.2	192.3
42.5°	647.4	681.8	678.6	539.5	395.6	297.1	223.6	173.6	151.7
45°	578.6	602.0	592.6	467.5	334.6	250.2	181.4	134.5	114.1
47.5°	509.8	527.0	512.9	406.6	283.0	206.4	147.0	98.5	76.6
50°	453.5	461.3	442.5	345.6	236.1	168.9	111.0	65.7	62.5
52.5°	400.3	405.0	378.4	294.0	195.5	136.0	81.3	51.6	54.7
55°	356.5	355.0	325.2	248.6	161.1	104.8	54.7	46.9	50.0
57.5°	314.3	309.6	279.9	206.4	131.4	81.3	32.8	40.7	43.8
60°	276.8	272.1	237.7	170.4	104.8	61.0	26.6	36.0	39.1
62.5°	247.1	236.1	201.7	140.7	84.4	43.8	23.5	31.3	34.4
65°	214.2	204.8	172.0	114.1	65.7	31.3	20.3	26.6	29.7
67.5°	187.6	176.7	145.4	93.8	53.2	21.9	18.8	23.5	26.6
70°	161.1	151.7	120.4	75.1	39.1	14.1	15.6	20.3	23.5
72.5°	139.2	128.2	100.1	59.4	29.7	10.9	14.1	17.2	18.8
75°	114.1	104.8	79.7	45.3	20.3	9.4	10.9	14.1	15.6
77.5°	95.4	86.0	62.5	34.4	14.1	7.8	9.4	12.5	12.5
80°	73.5	65.7	46.9	23.5	9.4	4.7	7.8	9.4	9.4
82.5°	53.2	46.9	32.8	15.6	4.7	4.7	4.7	6.3	6.3
85°	36.0	31.3	20.3	9.4	3.1	3.1	3.1	3.1	3.1
87.5°	20.3	15.6	9.4	3.1	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	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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