

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



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: P837625

Luminaire Tested: HCSQ450D010-HM44560935-41SQLWW

Issue Date: 5/17/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P837625  
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: HCSQ450D010-HM44560935-41SQLWW  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: -

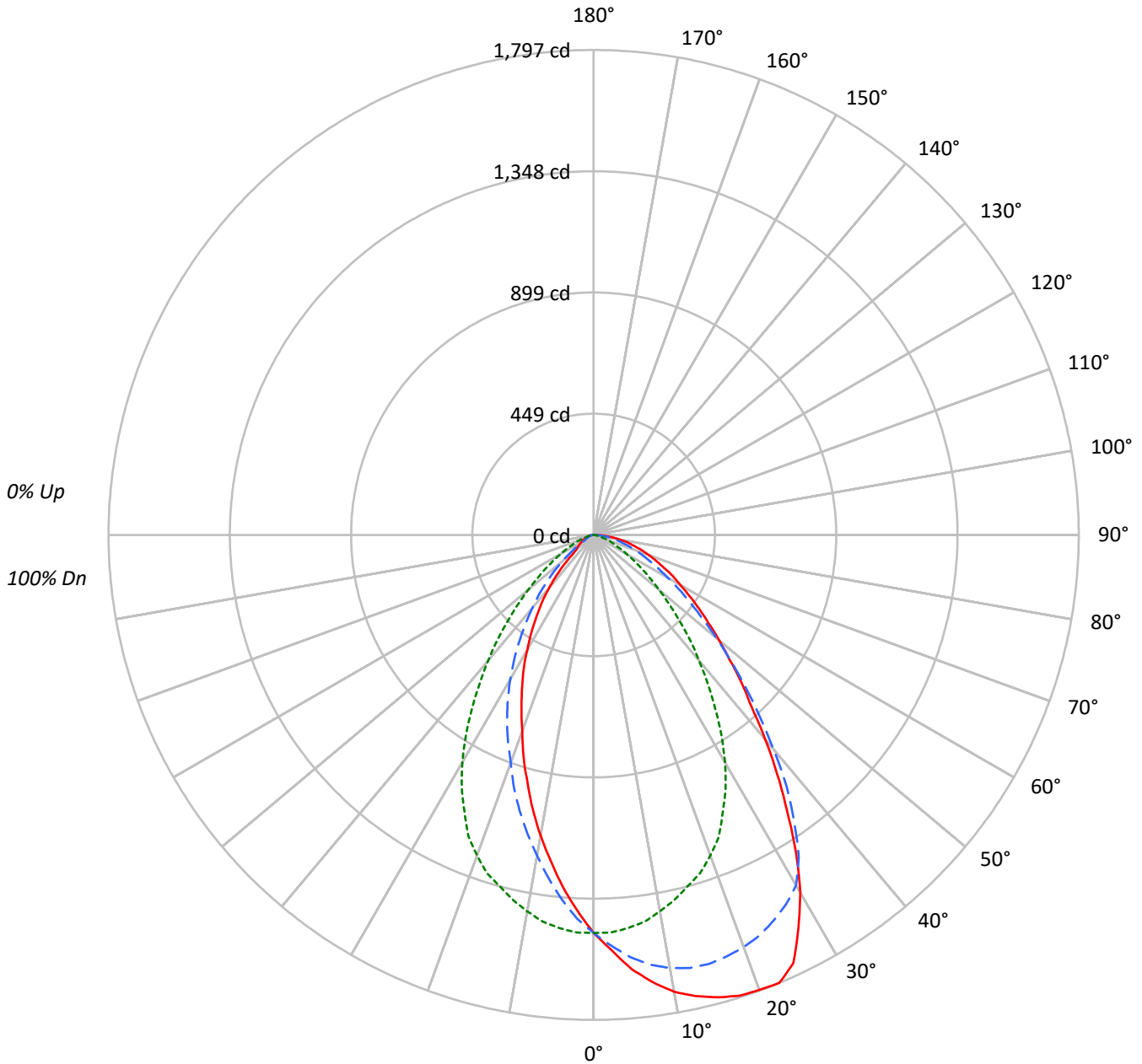
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2385.2 lumens  
Efficiency: N/A  
Efficacy: 48.0 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): 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					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°	142853	142853	142853	142853	142853
5°	157032	152753	142183	131807	127333
10°	169127	160284	139302	118723	111315
15°	177889	165092	135094	106150	95027
20°	185010	167546	130247	92505	79783
25°	187133	168577	120957	81162	67074
30°	171272	167760	108797	69019	54980
35°	147675	153115	92766	56648	43533
40°	125121	130939	76712	44704	32539
45°	106026	108602	61322	33237	20920
50°	91422	89206	47595	22381	12615
55°	80547	73487	36380	12363	11299
60°	71727	61593	27144	6898	10133
65°	65696	52745	20126	6235	9100
70°	61011	45631	14814	5920	8894
75°	57155	39938	10181	5465	7823
80°	54840	34979	6974	5858	6974
85°	53464	30233	4668	4668	4668

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°  
 Vertical Angle: 45°  
 Luminance: 110328 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	138.3	5.8
10°-20°	380.7	16.0
20°-30°	532.3	22.3
30°-40°	520.3	21.8
40°-50°	377.5	15.8
50°-60°	227.6	9.5
60°-70°	127.9	5.4
70°-80°	63.3	2.7
80°-90°	17.3	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°	1051.2	44.1
0°-40°	1571.5	65.9
0°-60°	2176.6	91.3
0°-90°	2385.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2385.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1475	1475	1475	1475	1475	
5°	1615	1571	1462	1355	1309	157
15°	1774	1646	1347	1058	948	502
25°	1751	1577	1132	759	628	789
35°	1249	1295	784	479	368	782
45°	774	793	448	243	153	600
55°	477	435	215	73	67	429
65°	287	230	88	27	40	287
75°	153	107	27	15	21	164
85°	48	27	4	4	4	53
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°	1474.6	1474.6	1474.6	1474.6	1474.6	1474.6	1474.6	1474.6	1474.6
2.5°	1541.6	1537.4	1524.8	1499.7	1474.6	1445.3	1422.3	1405.6	1393.0
5°	1614.8	1606.4	1570.8	1518.5	1462.1	1405.6	1355.4	1326.1	1309.4
7.5°	1671.2	1656.6	1606.4	1533.2	1445.3	1359.6	1282.2	1236.2	1217.3
10°	1719.3	1694.2	1629.4	1531.1	1416.1	1303.1	1206.9	1152.5	1131.6
12.5°	1750.7	1723.5	1644.0	1529.0	1384.7	1246.6	1133.7	1062.6	1041.6
15°	1773.7	1740.3	1646.1	1512.3	1347.0	1188.1	1058.4	974.7	947.5
17.5°	1790.5	1744.4	1637.8	1493.4	1313.6	1127.4	981.0	891.0	863.9
20°	1794.6	1744.4	1625.2	1466.3	1263.4	1066.7	897.3	807.4	773.9
22.5°	1796.7	1738.2	1606.4	1432.8	1211.1	997.7	828.3	734.2	698.6
25°	1750.7	1717.3	1577.1	1376.3	1131.6	922.4	759.3	656.8	627.5
27.5°	1642.0	1639.9	1543.6	1301.0	1058.4	840.8	688.2	589.8	562.7
30°	1531.1	1533.2	1499.7	1217.3	972.6	763.5	617.0	520.8	491.5
32.5°	1395.1	1416.1	1414.0	1123.2	880.6	690.2	548.0	458.1	428.8
35°	1248.7	1286.4	1294.7	1016.5	784.4	606.6	479.0	397.4	368.1
37.5°	1116.9	1154.6	1173.4	922.4	694.4	533.4	414.1	343.0	313.7
40°	989.4	1020.7	1035.4	813.7	606.6	458.1	353.5	286.6	257.3
42.5°	865.9	912.0	907.8	721.6	529.2	397.4	299.1	232.2	202.9
45°	773.9	805.3	792.7	625.4	447.6	334.7	242.6	179.9	152.7
47.5°	681.9	704.9	686.1	543.8	378.6	276.1	196.6	131.8	102.5
50°	606.6	617.0	591.9	462.3	315.8	225.9	148.5	87.8	83.7
52.5°	535.5	541.7	506.2	393.2	261.5	182.0	108.8	69.0	73.2
55°	476.9	474.8	435.1	332.6	215.4	140.1	73.2	62.7	66.9
57.5°	420.4	414.1	374.4	276.1	175.7	108.8	43.9	54.4	58.6
60°	370.2	363.9	317.9	228.0	140.1	81.6	35.6	48.1	52.3
62.5°	330.5	315.8	269.8	188.2	112.9	58.6	31.4	41.8	46.0
65°	286.6	274.0	230.1	152.7	87.8	41.8	27.2	35.6	39.7
67.5°	251.0	236.4	194.5	125.5	71.1	29.3	25.1	31.4	35.6
70°	215.4	202.9	161.1	100.4	52.3	18.8	20.9	27.2	31.4
72.5°	186.2	171.5	133.9	79.5	39.7	14.6	18.8	23.0	25.1
75°	152.7	140.1	106.7	60.7	27.2	12.5	14.6	18.8	20.9
77.5°	127.6	115.0	83.7	46.0	18.8	10.5	12.5	16.7	16.7
80°	98.3	87.8	62.7	31.4	12.5	6.3	10.5	12.5	12.5
82.5°	71.1	62.7	43.9	20.9	6.3	6.3	6.3	8.4	8.4
85°	48.1	41.8	27.2	12.5	4.2	4.2	4.2	4.2	4.2
87.5°	27.2	20.9	12.5	4.2	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

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Scaled Data Report



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Scaled Data Report







— 0°-180°    - - 45°-225°    - - - - 90°-270°

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