

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: P838771

Luminaire Tested: HCSQ660D010-HM64560940-61SQLWW

Issue Date: 5/21/2024



**Test Information**

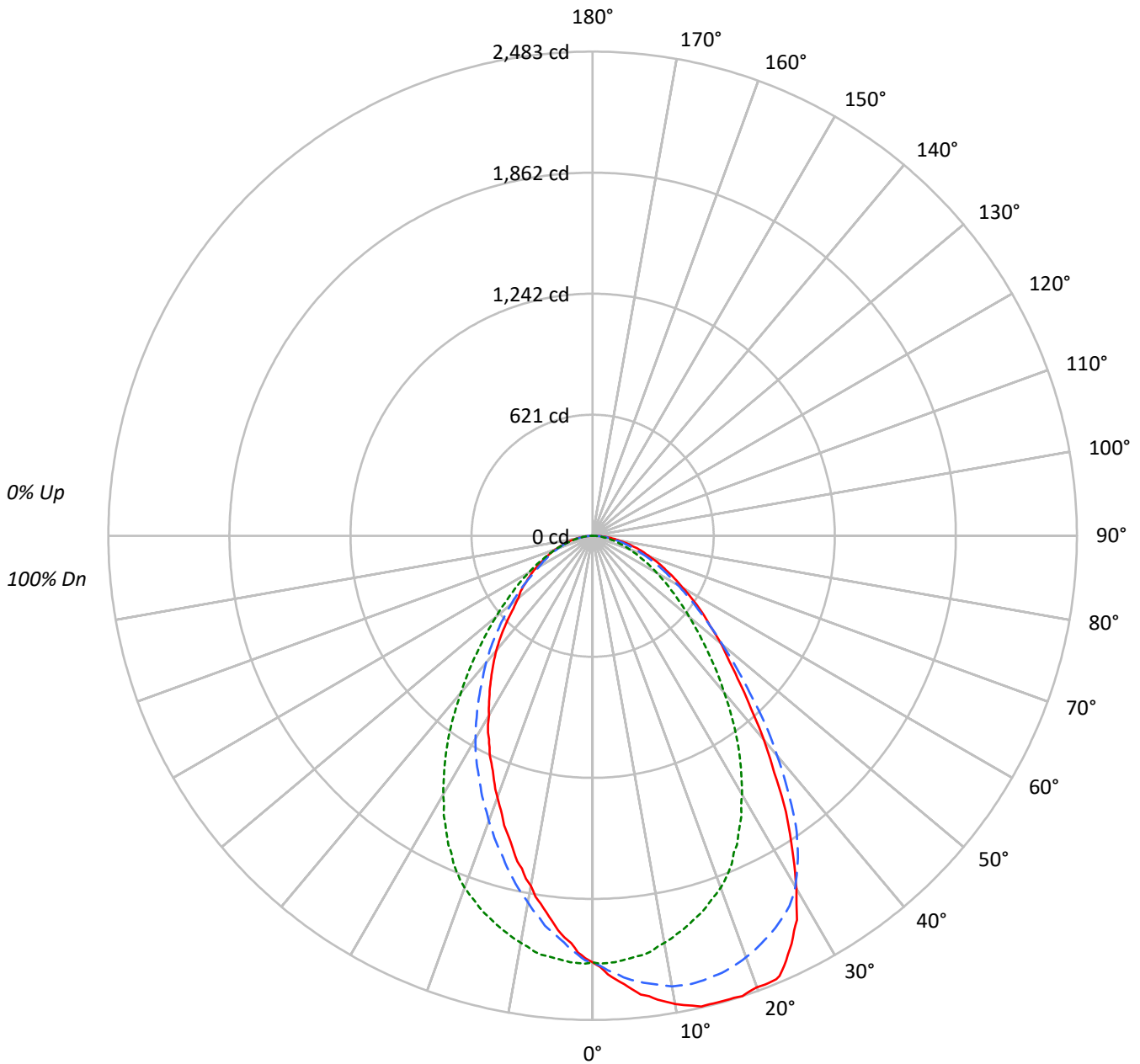
Test Method: LM-79-2019  
Report Number: P838771  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-166-5)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ660D010-HM64560940-61SQLWW  
Description: HALO COMMERCIAL 6" 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: 4136.5 lumens  
Efficiency: N/A  
Efficacy: 73.9 lumens/watt  
Spacing Criteria (0/90/45): 1.11 / 1.08 / 1.17  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 56  
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					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	110	106	103	99	108	104	101	98	100	97	95	96	94	92	92	91	89	87								
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75								
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66								
4	87	76	69	63	85	75	68	62	73	66	62	71	65	61	68	64	60	58								
5	81	69	61	55	79	68	61	55	66	60	55	64	59	54	63	58	53	51								
6	75	63	55	49	74	62	55	49	61	54	49	59	53	48	58	52	48	46								
7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	42								
8	66	53	46	40	64	53	45	40	51	45	40	50	44	40	49	44	39	38								
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34								
10	58	46	39	34	57	45	38	34	44	38	34	44	38	33	43	37	33	32								

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

	0°	45°	90°	135°	180°
0°	211915	211915	211915	211915	211915
5°	227068	222405	211587	200656	197467
10°	239836	230850	208505	187768	179240
15°	248516	235126	203655	174058	163016
20°	254010	237103	197989	160319	147041
25°	253351	237077	187004	146953	133185
30°	233691	232517	171339	134402	118943
35°	204406	215073	153446	120214	107749
40°	172671	186152	132684	107518	97148
45°	145990	155943	113589	94340	85024
50°	129536	130780	97420	82243	74828
55°	115897	111945	84263	70802	70413
60°	103463	97563	73509	61264	66243
65°	95015	86705	63886	56917	60676
70°	87579	77609	56394	53080	56394
75°	82420	69245	49108	48210	51728
80°	75761	62065	43124	44408	47030
85°	75472	55965	36458	36458	41682

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 40°  
 Vertical Angle: 45°  
 Luminance: 157224 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	206.3	5.0
10°-20°	575.1	13.9
20°-30°	820.3	19.8
30°-40°	845.4	20.4
40°-50°	680.5	16.5
50°-60°	481.2	11.6
60°-70°	311.9	7.5
70°-80°	167.5	4.1
80°-90°	48.4	1.2
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°	1601.7	38.7
0°-40°	2447.0	59.2
0°-60°	3608.7	87.2
0°-90°	4136.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4136.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2188	2188	2188	2188	2188	
5°	2335	2287	2176	2063	2031	226
15°	2478	2344	2031	1736	1625	701
25°	2370	2218	1750	1375	1246	1079
35°	1728	1819	1298	1016	911	1073
45°	1066	1138	829	689	621	833
55°	686	663	499	419	417	614
65°	414	378	279	248	265	414
75°	220	185	131	129	138	233
85°	68	50	33	33	38	75
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
0°	2187.5	2187.5	2187.5	2187.5	2187.5	2187.5	2187.5	2187.5	2187.5	2187.5	2187.5
1°	2210.9	2220.3	2213.3	2213.3	2206.2	2203.9	2208.6	2201.5	2199.2	2194.5	2185.1
2°	2250.7	2243.7	2241.4	2243.7	2229.6	2229.6	2222.6	2208.6	2201.5	2192.2	2166.4
3°	2278.8	2274.1	2269.5	2267.1	2253.1	2241.4	2232.0	2215.6	2201.5	2189.8	2152.4
4°	2304.6	2304.6	2299.9	2290.5	2276.5	2262.4	2243.7	2225.0	2203.9	2182.8	2133.6
5°	2335.0	2337.4	2316.3	2314.0	2297.6	2276.5	2255.4	2229.6	2203.9	2175.8	2121.9
6°	2365.5	2353.8	2349.1	2332.7	2309.3	2290.5	2264.8	2236.7	2201.5	2168.8	2096.2
7°	2379.5	2377.2	2365.5	2349.1	2328.0	2297.6	2271.8	2234.3	2196.9	2164.1	2077.4
8°	2403.0	2403.0	2388.9	2367.8	2337.4	2309.3	2276.5	2232.0	2194.5	2152.4	2051.7
9°	2419.4	2419.4	2400.6	2381.9	2353.8	2316.3	2278.8	2229.6	2182.8	2133.6	2028.2
10°	2438.1	2433.4	2419.4	2391.3	2367.8	2325.7	2278.8	2227.3	2175.8	2119.6	2004.8
11°	2452.1	2445.1	2428.7	2407.6	2370.2	2328.0	2278.8	2227.3	2166.4	2105.5	1981.4
12°	2463.9	2459.2	2438.1	2412.3	2374.9	2332.7	2276.5	2217.9	2150.0	2086.8	1950.9
13°	2477.9	2463.9	2442.8	2419.4	2377.2	2328.0	2267.1	2203.9	2138.3	2070.4	1925.2
14°	2475.6	2473.2	2454.5	2421.7	2374.9	2323.3	2264.8	2189.8	2121.9	2051.7	1894.7
15°	2477.9	2475.6	2454.5	2424.0	2372.5	2316.3	2257.8	2180.5	2105.5	2030.6	1864.3
16°	2477.9	2477.9	2449.8	2419.4	2370.2	2309.3	2243.7	2171.1	2089.1	2014.2	1838.5
17°	2477.9	2477.9	2454.5	2412.3	2363.1	2304.6	2229.6	2152.4	2070.4	1990.8	1801.1
18°	2482.6	2475.6	2445.1	2410.0	2353.8	2292.9	2220.3	2138.3	2054.0	1965.0	1775.3
19°	2470.9	2466.2	2440.4	2395.9	2346.8	2278.8	2206.2	2121.9	2037.6	1943.9	1744.8
20°	2463.9	2470.9	2435.8	2388.9	2332.7	2267.1	2192.2	2105.5	2014.2	1920.5	1714.4
21°	2466.2	2463.9	2426.4	2377.2	2323.3	2250.7	2175.8	2086.8	1988.4	1892.4	1686.3
22.5°	2461.5	2454.5	2414.7	2360.8	2295.2	2229.6	2147.7	2056.3	1950.9	1843.2	1632.4
23°	2452.1	2445.1	2414.7	2356.1	2285.9	2220.3	2133.6	2037.6	1936.9	1826.8	1618.4
24°	2414.7	2412.3	2398.3	2339.7	2274.1	2201.5	2117.2	2007.2	1894.7	1780.0	1583.2
25°	2370.2	2374.9	2367.8	2330.4	2255.4	2180.5	2091.5	1969.7	1854.9	1749.5	1541.1
26°	2328.0	2328.0	2323.3	2309.3	2236.7	2157.0	2054.0	1925.2	1815.1	1705.0	1496.6
27°	2274.1	2283.5	2274.1	2267.1	2217.9	2131.3	2014.2	1894.7	1770.6	1662.9	1459.1
28°	2232.0	2232.0	2227.3	2215.6	2199.2	2100.8	1972.0	1850.2	1728.4	1625.4	1417.0
29°	2157.0	2171.1	2173.4	2175.8	2173.4	2061.0	1932.2	1801.1	1683.9	1571.5	1377.1
30°	2089.1	2103.2	2112.5	2128.9	2131.3	2025.9	1885.4	1761.2	1641.8	1531.7	1342.0
32.5°	1904.1	1929.9	1955.6	1983.7	1997.8	1920.5	1770.6	1634.8	1513.0	1414.6	1234.3
35°	1728.4	1735.5	1763.6	1829.2	1843.2	1794.0	1634.8	1505.9	1391.2	1297.5	1133.6
37.5°	1529.4	1543.4	1583.2	1658.2	1662.9	1623.1	1513.0	1363.1	1255.3	1173.4	1030.5
40°	1365.4	1372.5	1400.6	1463.8	1484.9	1459.1	1363.1	1227.2	1128.9	1049.2	932.1
42.5°	1201.5	1210.8	1246.0	1295.2	1325.6	1295.2	1210.8	1093.7	997.7	939.2	838.5
45°	1065.6	1077.4	1110.1	1138.2	1147.6	1128.9	1053.9	957.9	890.0	829.1	751.8
47.5°	948.5	960.2	983.7	995.4	1007.1	988.4	929.8	850.2	782.3	733.1	662.8
50°	859.5	857.2	873.6	878.3	878.3	857.2	808.0	742.4	686.2	646.4	587.9
52.5°	758.8	763.5	775.2	770.5	768.2	749.5	707.3	651.1	604.3	569.1	515.3
55°	686.2	679.2	686.2	681.5	672.2	653.4	616.0	569.1	529.3	498.9	449.7
57.5°	606.6	606.6	608.9	599.6	587.9	566.8	534.0	496.5	461.4	435.6	395.8
60°	534.0	538.7	536.3	527.0	515.3	491.8	466.1	428.6	398.2	379.4	341.9



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**CANDELA DISTRIBUTION (continued):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	363.0	363.0	356.0	349.0	332.6	311.5	292.8	269.3	252.9	236.5	213.1
70°	309.2	313.8	304.5	292.8	281.0	267.0	245.9	227.2	210.8	199.1	180.3
72.5°	267.0	264.7	257.6	245.9	236.5	220.2	201.4	187.4	173.3	163.9	149.9
75°	220.2	220.2	213.1	203.8	192.0	178.0	163.9	152.2	140.5	131.2	124.1
77.5°	175.7	178.0	171.0	163.9	154.6	140.5	128.8	119.4	110.1	103.1	98.4
80°	135.8	138.2	131.2	126.5	114.8	107.7	98.4	89.0	82.0	77.3	74.9
82.5°	103.1	100.7	96.0	93.7	84.3	77.3	67.9	63.2	58.6	53.9	53.9
85°	67.9	65.6	63.2	60.9	53.9	46.8	44.5	39.8	35.1	32.8	32.8
87.5°	35.1	35.1	32.8	30.4	28.1	23.4	21.1	16.4	14.1	14.1	14.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	2187.5	2187.5	2187.5
1°	2178.1	2168.8	2166.4
2°	2150.0	2136.0	2138.3
3°	2124.3	2107.9	2091.5
4°	2091.5	2065.7	2065.7
5°	2063.4	2037.6	2030.6
6°	2037.6	1995.4	1986.1
7°	2014.2	1962.7	1946.3
8°	1974.4	1922.8	1906.4
9°	1946.3	1890.0	1873.7
10°	1908.8	1852.6	1822.1
11°	1878.3	1815.1	1791.7
12°	1845.5	1768.3	1744.8
13°	1808.1	1728.4	1714.4
14°	1772.9	1695.7	1669.9
15°	1735.5	1655.8	1625.4
16°	1695.7	1616.0	1587.9
17°	1662.9	1573.9	1552.8
18°	1630.1	1536.4	1503.6
19°	1590.3	1501.3	1463.8
20°	1555.1	1456.8	1426.3
21°	1517.7	1424.0	1391.2
22.5°	1466.1	1360.7	1330.3
23°	1449.7	1342.0	1309.2
24°	1412.3	1304.5	1276.4
25°	1374.8	1276.4	1246.0
26°	1342.0	1234.3	1206.2
27°	1309.2	1201.5	1171.0
28°	1274.1	1166.3	1142.9
29°	1239.0	1128.9	1105.5
30°	1201.5	1103.1	1063.3
32.5°	1107.8	1018.8	986.0
35°	1016.5	939.2	911.1
37.5°	927.5	864.2	838.5
40°	850.2	794.0	768.2
42.5°	770.5	719.0	693.3
45°	688.6	646.4	620.6
47.5°	613.6	578.5	550.4
50°	545.7	510.6	496.5
52.5°	480.1	456.7	463.7
55°	419.2	419.2	416.9
57.5°	360.7	377.1	379.4
60°	316.2	337.3	341.9





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**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
67.5°	217.8	229.5	234.2
70°	187.4	196.7	199.1
72.5°	159.3	166.3	171.0
75°	128.8	138.2	138.2
77.5°	105.4	110.1	112.4
80°	79.6	82.0	84.3
82.5°	56.2	58.6	60.9
85°	32.8	35.1	37.5
87.5°	14.1	14.1	14.1
90°	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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Scaled Data Report





62.5°	473.1	477.8	470.8	459.0	447.3	426.3	402.8	370.0	346.6	327.9	295.1
65°	414.5	416.9	412.2	400.5	388.8	367.7	344.3	316.2	297.4	278.7	250.6

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Scaled Data Report



62.5°	283.4	299.8	302.1
65°	248.3	262.3	264.7

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Scaled Data Report



(END OF REPORT)