

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: P838691

Luminaire Tested: HCSQ650D010-HM64560940-61SQLWW

Issue Date: 5/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P838691
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: HCSQ650D010-HM64560940-61SQLWW
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

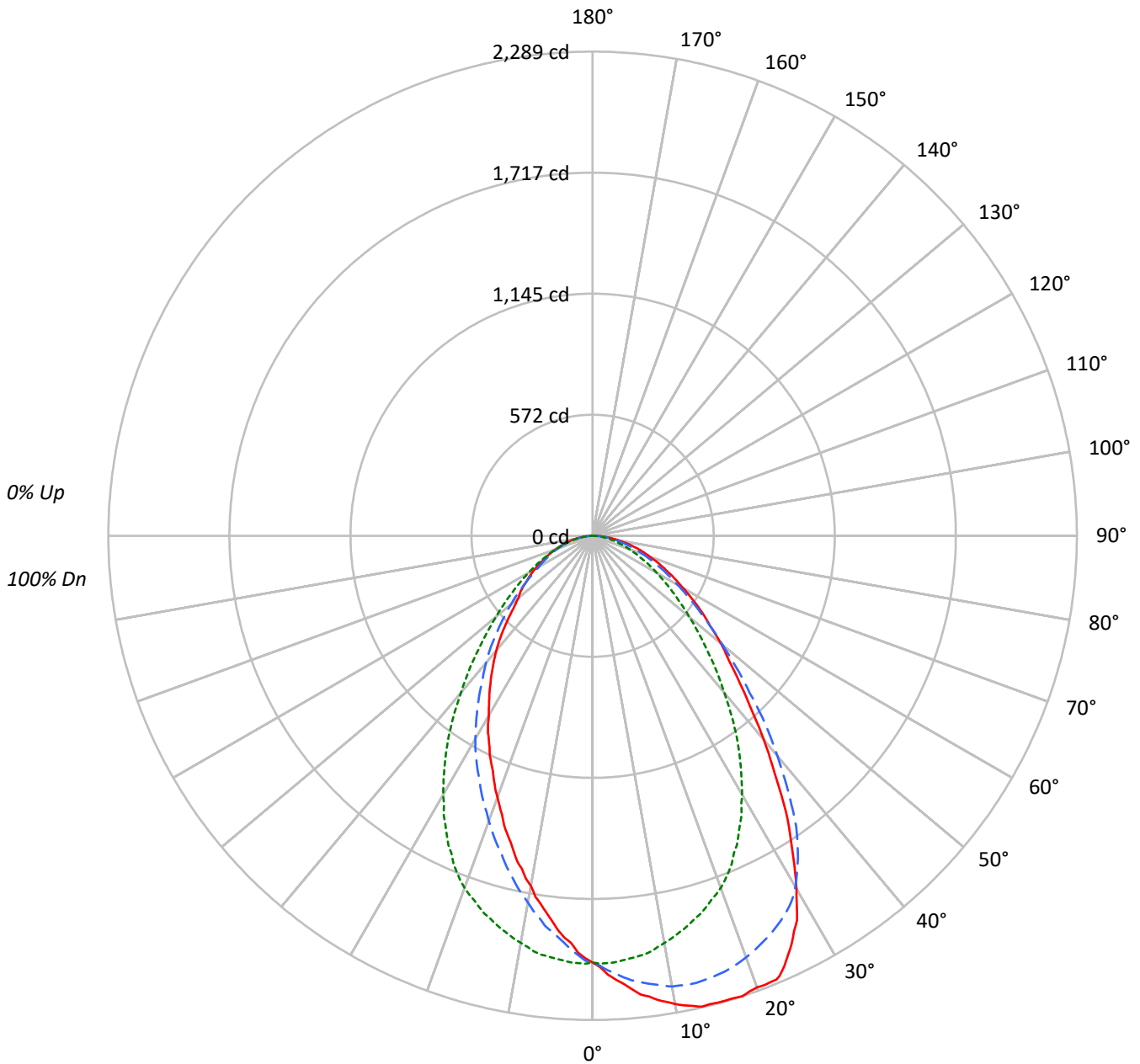
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3814.6 lumens
Efficiency: N/A
Efficacy: 76.8 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): 49.7
Input Voltage (V): NR
Input Current (A_{in}): 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°	195427	195427	195427	195427	195427
5°	209399	205096	195123	185039	182092
10°	221175	212887	192274	173151	165291
15°	229179	216828	187798	160509	150329
20°	234237	218654	182577	147845	135598
25°	233630	218628	172457	135515	122817
30°	215502	214417	158005	123943	109692
35°	188499	198339	141502	110860	99365
40°	159241	171666	122365	99146	89586
45°	134632	143805	104752	86997	78407
50°	119454	120599	89839	75838	69011
55°	106878	103238	77693	65296	64924
60°	95403	89978	67793	56498	61090
65°	87633	79954	58911	52470	55954
70°	80753	71576	52004	48945	52004
75°	75982	63855	45253	44467	47686
80°	69903	57239	39777	40949	43403
85°	69581	51630	33568	33568	38459

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 40°
 Vertical Angle: 45°
 Luminance: 144990 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	190.3	5.0
10°-20°	530.3	13.9
20°-30°	756.4	19.8
30°-40°	779.6	20.4
40°-50°	627.6	16.5
50°-60°	443.8	11.6
60°-70°	287.6	7.5
70°-80°	154.5	4.0
80°-90°	44.6	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°	1477.0	38.7
0°-40°	2256.6	59.2
0°-60°	3327.9	87.2
0°-90°	3814.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3814.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2017	2017	2017	2017	2017	
5°	2153	2109	2006	1903	1872	208
15°	2285	2162	1872	1600	1499	646
25°	2186	2045	1613	1268	1149	995
35°	1594	1677	1196	937	840	989
45°	983	1050	765	635	572	768
55°	633	611	460	387	384	566
65°	382	349	257	229	244	381
75°	203	171	121	119	127	215
85°	63	46	30	30	35	69
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°	2017.3	2017.3	2017.3	2017.3	2017.3	2017.3	2017.3	2017.3	2017.3	2017.3	2017.3
1°	2038.9	2047.5	2041.0	2041.0	2034.5	2032.4	2036.7	2030.2	2028.1	2023.7	2015.1
2°	2075.6	2069.1	2066.9	2069.1	2056.1	2056.1	2049.7	2036.7	2030.2	2021.6	1997.8
3°	2101.5	2097.2	2092.8	2090.7	2077.7	2066.9	2058.3	2043.2	2030.2	2019.4	1984.9
4°	2125.2	2125.2	2120.9	2112.3	2099.3	2086.4	2069.1	2051.8	2032.4	2012.9	1967.6
5°	2153.3	2155.5	2136.0	2133.9	2118.8	2099.3	2079.9	2056.1	2032.4	2006.5	1956.8
6°	2181.4	2170.6	2166.3	2151.2	2129.6	2112.3	2088.5	2062.6	2030.2	2000.0	1933.0
7°	2194.4	2192.2	2181.4	2166.3	2146.8	2118.8	2095.0	2060.5	2025.9	1995.7	1915.7
8°	2216.0	2216.0	2203.0	2183.6	2155.5	2129.6	2099.3	2058.3	2023.7	1984.9	1892.0
9°	2231.1	2231.1	2213.8	2196.5	2170.6	2136.0	2101.5	2056.1	2012.9	1967.6	1870.4
10°	2248.4	2244.0	2231.1	2205.2	2183.6	2144.7	2101.5	2054.0	2006.5	1954.6	1848.8
11°	2261.3	2254.8	2239.7	2220.3	2185.7	2146.8	2101.5	2054.0	1997.8	1941.7	1827.2
12°	2272.1	2267.8	2248.4	2224.6	2190.0	2151.2	2099.3	2045.3	1982.7	1924.4	1799.1
13°	2285.1	2272.1	2252.7	2231.1	2192.2	2146.8	2090.7	2032.4	1971.9	1909.3	1775.4
14°	2282.9	2280.8	2263.5	2233.2	2190.0	2142.5	2088.5	2019.4	1956.8	1892.0	1747.3
15°	2285.1	2282.9	2263.5	2235.4	2187.9	2136.0	2082.0	2010.8	1941.7	1872.5	1719.2
16°	2285.1	2285.1	2259.2	2231.1	2185.7	2129.6	2069.1	2002.1	1926.5	1857.4	1695.4
17°	2285.1	2285.1	2263.5	2224.6	2179.2	2125.2	2056.1	1984.9	1909.3	1835.8	1660.9
18°	2289.4	2282.9	2254.8	2222.4	2170.6	2114.4	2047.5	1971.9	1894.1	1812.1	1637.1
19°	2278.6	2274.3	2250.5	2209.5	2164.1	2101.5	2034.5	1956.8	1879.0	1792.6	1609.1
20°	2272.1	2278.6	2246.2	2203.0	2151.2	2090.7	2021.6	1941.7	1857.4	1771.0	1581.0
21°	2274.3	2272.1	2237.6	2192.2	2142.5	2075.6	2006.5	1924.4	1833.7	1745.1	1555.1
22.5°	2270.0	2263.5	2226.8	2177.1	2116.6	2056.1	1980.5	1896.3	1799.1	1699.8	1505.4
23°	2261.3	2254.8	2226.8	2172.8	2108.0	2047.5	1967.6	1879.0	1786.2	1684.6	1492.4
24°	2226.8	2224.6	2211.6	2157.6	2097.2	2030.2	1952.5	1851.0	1747.3	1641.4	1460.0
25°	2185.7	2190.0	2183.6	2149.0	2079.9	2010.8	1928.7	1816.4	1710.6	1613.4	1421.1
26°	2146.8	2146.8	2142.5	2129.6	2062.6	1989.2	1894.1	1775.4	1673.8	1572.3	1380.1
27°	2097.2	2105.8	2097.2	2090.7	2045.3	1965.4	1857.4	1747.3	1632.8	1533.5	1345.6
28°	2058.3	2058.3	2054.0	2043.2	2028.1	1937.3	1818.6	1706.2	1593.9	1498.9	1306.7
29°	1989.2	2002.1	2004.3	2006.5	2004.3	1900.6	1781.8	1660.9	1552.9	1449.2	1270.0
30°	1926.5	1939.5	1948.1	1963.3	1965.4	1868.2	1738.6	1624.2	1514.0	1412.5	1237.6
32.5°	1755.9	1779.7	1803.4	1829.4	1842.3	1771.0	1632.8	1507.5	1395.2	1304.5	1138.2
35°	1593.9	1600.4	1626.3	1686.8	1699.8	1654.4	1507.5	1388.8	1282.9	1196.5	1045.3
37.5°	1410.4	1423.3	1460.0	1529.1	1533.5	1496.7	1395.2	1257.0	1157.7	1082.1	950.3
40°	1259.2	1265.6	1291.6	1349.9	1369.3	1345.6	1257.0	1131.7	1041.0	967.6	859.6
42.5°	1108.0	1116.6	1149.0	1194.4	1222.4	1194.4	1116.6	1008.6	920.1	866.1	773.2
45°	982.7	993.5	1023.7	1049.7	1058.3	1041.0	971.9	883.4	820.7	764.6	693.3
47.5°	874.7	885.5	907.1	917.9	928.7	911.4	857.4	784.0	721.4	676.0	611.2
50°	792.6	790.5	805.6	809.9	809.9	790.5	745.1	684.7	632.8	596.1	542.1
52.5°	699.8	704.1	714.9	710.6	708.4	691.1	652.3	600.4	557.2	524.8	475.2
55°	632.8	626.3	632.8	628.5	619.9	602.6	568.0	524.8	488.1	460.0	414.7
57.5°	559.4	559.4	561.5	552.9	542.1	522.7	492.4	457.9	425.5	401.7	365.0
60°	492.4	496.8	494.6	486.0	475.2	453.6	429.8	395.2	367.2	349.9	315.3



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	334.8	334.8	328.3	321.8	306.7	287.3	270.0	248.4	233.3	218.1	196.5
70°	285.1	289.4	280.8	270.0	259.2	246.2	226.8	209.5	194.4	183.6	166.3
72.5°	246.2	244.1	237.6	226.8	218.1	203.0	185.7	172.8	159.8	151.2	138.2
75°	203.0	203.0	196.5	187.9	177.1	164.1	151.2	140.4	129.6	120.9	114.5
77.5°	162.0	164.1	157.7	151.2	142.5	129.6	118.8	110.1	101.5	95.0	90.7
80°	125.3	127.4	120.9	116.6	105.8	99.4	90.7	82.1	75.6	71.3	69.1
82.5°	95.0	92.9	88.6	86.4	77.8	71.3	62.6	58.3	54.0	49.7	49.7
85°	62.6	60.5	58.3	56.2	49.7	43.2	41.0	36.7	32.4	30.2	30.2
87.5°	32.4	32.4	30.2	28.1	25.9	21.6	19.4	15.1	13.0	13.0	13.0
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°	2017.3	2017.3	2017.3
1°	2008.6	2000.0	1997.8
2°	1982.7	1969.7	1971.9
3°	1958.9	1943.8	1928.7
4°	1928.7	1904.9	1904.9
5°	1902.8	1879.0	1872.5
6°	1879.0	1840.2	1831.5
7°	1857.4	1809.9	1794.8
8°	1820.7	1773.2	1758.1
9°	1794.8	1743.0	1727.8
10°	1760.2	1708.4	1680.3
11°	1732.2	1673.8	1652.2
12°	1701.9	1630.7	1609.1
13°	1667.4	1593.9	1581.0
14°	1635.0	1563.7	1539.9
15°	1600.4	1527.0	1498.9
16°	1563.7	1490.3	1464.3
17°	1533.5	1451.4	1431.9
18°	1503.2	1416.8	1386.6
19°	1466.5	1384.4	1349.9
20°	1434.1	1343.4	1315.3
21°	1399.6	1313.2	1282.9
22.5°	1352.0	1254.8	1226.8
23°	1336.9	1237.6	1207.3
24°	1302.4	1203.0	1177.1
25°	1267.8	1177.1	1149.0
26°	1237.6	1138.2	1112.3
27°	1207.3	1108.0	1079.9
28°	1174.9	1075.6	1054.0
29°	1142.5	1041.0	1019.4
30°	1108.0	1017.3	980.6
32.5°	1021.6	939.5	909.3
35°	937.4	866.1	840.2
37.5°	855.3	797.0	773.2
40°	784.0	732.2	708.4
42.5°	710.6	663.1	639.3
45°	635.0	596.1	572.3
47.5°	565.9	533.5	507.6
50°	503.2	470.8	457.9
52.5°	442.8	421.2	427.6
55°	386.6	386.6	384.4
57.5°	332.6	347.7	349.9
60°	291.6	311.0	315.3



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	200.9	211.7	216.0
70°	172.8	181.4	183.6
72.5°	146.9	153.3	157.7
75°	118.8	127.4	127.4
77.5°	97.2	101.5	103.7
80°	73.4	75.6	77.8
82.5°	51.8	54.0	56.2
85°	30.2	32.4	34.6
87.5°	13.0	13.0	13.0
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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62.5°	436.3	440.6	434.1	423.3	412.5	393.1	371.5	341.2	319.7	302.4	272.1
65°	382.3	384.4	380.1	369.3	358.5	339.1	317.5	291.6	274.3	257.0	231.1

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62.5°	261.3	276.5	278.6
65°	228.9	241.9	244.1

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Scaled Data Report



(END OF REPORT)