

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: P838621

Luminaire Tested: HCSQ645D010-HM64560830-61SQLWW

Issue Date: 5/21/2024



Test Information

Test Method: LM-79-2019
Report Number: P838621
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: HCSQ645D010-HM64560830-61SQLWW
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: -

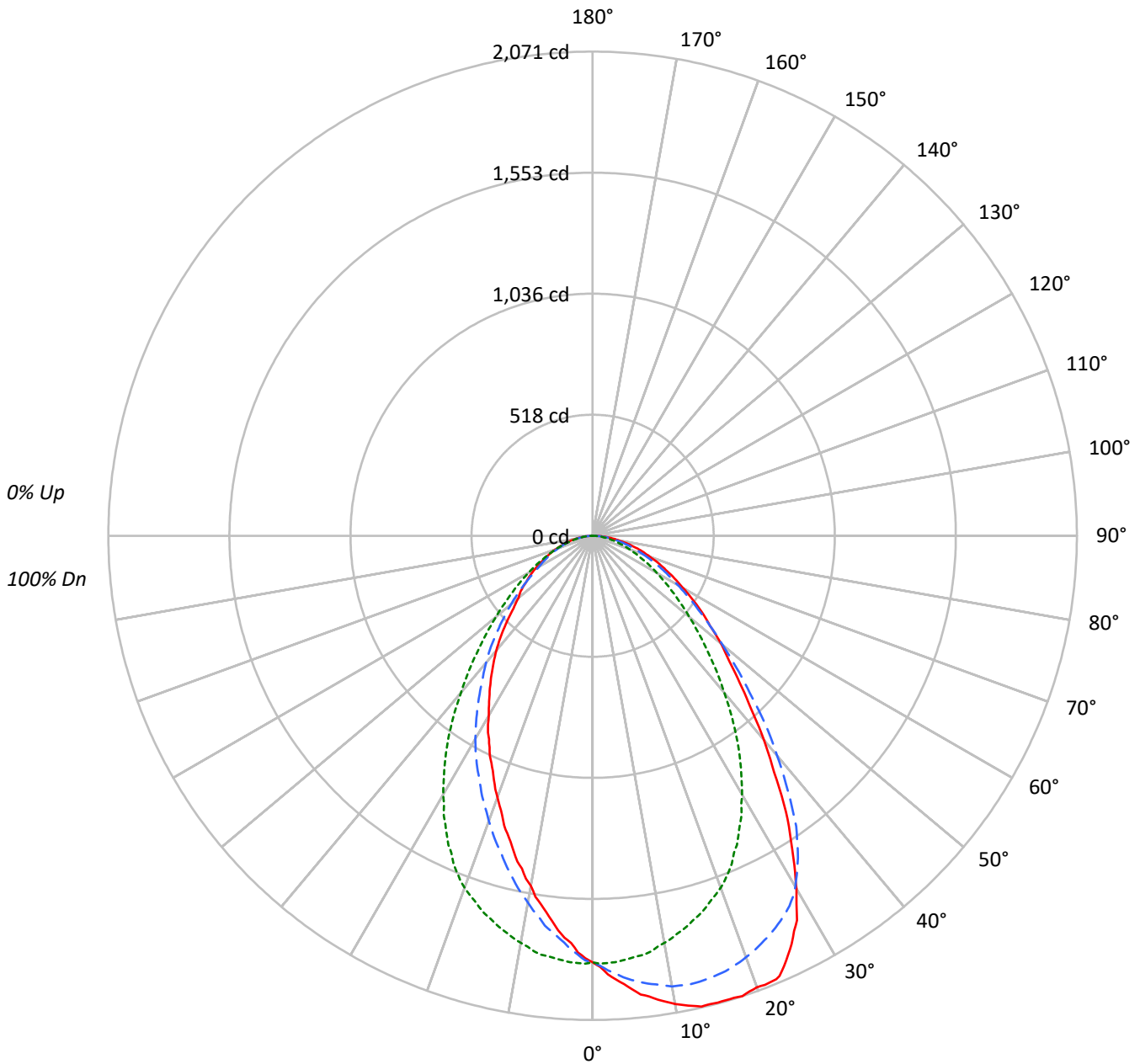
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3450.6 lumens
Efficiency: N/A
Efficacy: 75.2 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): 45.9
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					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					100			
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	92	91	89	87					87			
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75					75			
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66					66			
4	87	76	69	63	85	75	68	62	73	66	62	71	65	61	68	64	60	58					58			
5	81	69	61	55	79	68	61	55	66	60	55	64	59	54	63	58	53	51					51			
6	75	63	55	49	74	62	55	49	61	54	49	59	53	48	58	52	48	46					46			
7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	42					42			
8	66	53	46	40	64	53	45	40	51	45	40	50	44	40	49	44	39	38					38			
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34					34			
10	58	46	39	34	57	45	38	34	44	38	34	44	38	33	43	37	33	32					32			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	176778	176778	176778	176778	176778
5°	189415	185525	176501	167379	164724
10°	200065	192569	173928	156634	149522
15°	207305	196138	169886	145194	135987
20°	211886	197788	165154	133742	122660
25°	211333	197763	155996	122582	111102
30°	194942	193958	142926	112108	99222
35°	170512	179411	127996	100275	89880
40°	144040	155283	110692	89687	81037
45°	121782	130084	94751	78694	70926
50°	108060	109092	81264	68604	62425
55°	96677	93383	70278	59063	58742
60°	86297	81385	61322	51092	55258
65°	79267	72321	53295	47473	50613
70°	73049	64736	47047	44271	47047
75°	68721	57773	40948	40237	43157
80°	63208	51772	35983	37043	39219
85°	63023	46684	30456	30456	34791

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 40°
 Vertical Angle: 45°
 Luminance: 131153 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.1	5.0
10°-20°	479.7	13.9
20°-30°	684.3	19.8
30°-40°	705.2	20.4
40°-50°	567.7	16.5
50°-60°	401.4	11.6
60°-70°	260.2	7.5
70°-80°	139.8	4.1
80°-90°	40.4	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°	1336.1	38.7
0°-40°	2041.2	59.2
0°-60°	3010.3	87.2
0°-90°	3450.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3450.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1825	1825	1825	1825	1825	
5°	1948	1908	1815	1721	1694	189
15°	2067	1956	1694	1448	1356	585
25°	1977	1850	1459	1147	1039	900
35°	1442	1517	1082	848	760	895
45°	889	950	692	574	518	695
55°	572	553	416	350	348	512
65°	346	316	232	207	221	345
75°	184	154	109	108	115	195
85°	57	42	27	27	31	62
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°	1824.8	1824.8	1824.8	1824.8	1824.8	1824.8	1824.8	1824.8	1824.8	1824.8	1824.8
1°	1844.3	1852.1	1846.2	1846.2	1840.4	1838.4	1842.3	1836.5	1834.5	1830.6	1822.8
2°	1877.5	1871.6	1869.7	1871.6	1859.9	1859.9	1854.1	1842.3	1836.5	1828.7	1807.2
3°	1900.9	1897.0	1893.1	1891.2	1879.5	1869.7	1861.9	1848.2	1836.5	1826.7	1795.4
4°	1922.4	1922.4	1918.5	1910.7	1899.0	1887.3	1871.6	1856.0	1838.4	1820.8	1779.8
5°	1947.8	1949.8	1932.2	1930.2	1916.6	1899.0	1881.4	1859.9	1838.4	1815.0	1770.0
6°	1973.2	1963.5	1959.6	1945.9	1926.3	1910.7	1889.2	1865.8	1836.5	1809.1	1748.6
7°	1985.0	1983.0	1973.2	1959.6	1942.0	1916.6	1895.1	1863.8	1832.6	1805.2	1732.9
8°	2004.5	2004.5	1992.8	1975.2	1949.8	1926.3	1899.0	1861.9	1830.6	1795.4	1711.4
9°	2018.2	2018.2	2002.5	1986.9	1963.5	1932.2	1900.9	1859.9	1820.8	1779.8	1691.9
10°	2033.8	2029.9	2018.2	1994.7	1975.2	1940.0	1900.9	1858.0	1815.0	1768.1	1672.4
11°	2045.5	2039.7	2026.0	2008.4	1977.1	1942.0	1900.9	1858.0	1807.2	1756.4	1652.8
12°	2055.3	2051.4	2033.8	2012.3	1981.0	1945.9	1899.0	1850.1	1793.5	1740.7	1627.4
13°	2067.0	2055.3	2037.7	2018.2	1983.0	1942.0	1891.2	1838.4	1783.7	1727.1	1605.9
14°	2065.1	2063.1	2047.5	2020.1	1981.0	1938.1	1889.2	1826.7	1770.0	1711.4	1580.5
15°	2067.0	2065.1	2047.5	2022.1	1979.1	1932.2	1883.4	1818.9	1756.4	1693.9	1555.1
16°	2067.0	2067.0	2043.6	2018.2	1977.1	1926.3	1871.6	1811.1	1742.7	1680.2	1533.6
17°	2067.0	2067.0	2047.5	2012.3	1971.3	1922.4	1859.9	1795.4	1727.1	1660.6	1502.4
18°	2070.9	2065.1	2039.7	2010.4	1963.5	1912.7	1852.1	1783.7	1713.4	1639.1	1480.9
19°	2061.1	2057.2	2035.7	1998.6	1957.6	1900.9	1840.4	1770.0	1699.7	1621.6	1455.5
20°	2055.3	2061.1	2031.8	1992.8	1945.9	1891.2	1828.7	1756.4	1680.2	1602.0	1430.1
21°	2057.2	2055.3	2024.0	1983.0	1938.1	1877.5	1815.0	1740.7	1658.7	1578.6	1406.7
22.5°	2053.3	2047.5	2014.3	1969.3	1914.6	1859.9	1791.5	1715.3	1627.4	1537.6	1361.7
23°	2045.5	2039.7	2014.3	1965.4	1906.8	1852.1	1779.8	1699.7	1615.7	1523.9	1350.0
24°	2014.3	2012.3	2000.6	1951.7	1897.0	1836.5	1766.1	1674.3	1580.5	1484.8	1320.7
25°	1977.1	1981.0	1975.2	1943.9	1881.4	1818.9	1744.6	1643.1	1547.3	1459.4	1285.5
26°	1942.0	1942.0	1938.1	1926.3	1865.8	1799.4	1713.4	1605.9	1514.1	1422.3	1248.4
27°	1897.0	1904.9	1897.0	1891.2	1850.1	1777.9	1680.2	1580.5	1477.0	1387.1	1217.2
28°	1861.9	1861.9	1858.0	1848.2	1834.5	1752.5	1645.0	1543.4	1441.8	1355.9	1182.0
29°	1799.4	1811.1	1813.0	1815.0	1813.0	1719.3	1611.8	1502.4	1404.7	1310.9	1148.8
30°	1742.7	1754.4	1762.2	1775.9	1777.9	1689.9	1572.7	1469.2	1369.5	1277.7	1119.5
32.5°	1588.4	1609.8	1631.3	1654.8	1666.5	1602.0	1477.0	1363.7	1262.1	1180.0	1029.6
35°	1441.8	1447.7	1471.1	1525.8	1537.6	1496.5	1363.7	1256.2	1160.5	1082.3	945.6
37.5°	1275.8	1287.5	1320.7	1383.2	1387.1	1353.9	1262.1	1137.0	1047.2	978.8	859.6
40°	1139.0	1144.9	1168.3	1221.1	1238.6	1217.2	1137.0	1023.7	941.7	875.3	777.6
42.5°	1002.2	1010.1	1039.4	1080.4	1105.8	1080.4	1010.1	912.4	832.3	783.4	699.4
45°	888.9	898.7	926.1	949.5	957.3	941.7	879.2	799.1	742.4	691.6	627.1
47.5°	791.2	801.0	820.6	830.3	840.1	824.5	775.6	709.2	652.5	611.5	552.9
50°	717.0	715.1	728.7	732.6	732.6	715.1	674.0	619.3	572.4	539.2	490.4
52.5°	633.0	636.9	646.7	642.8	640.8	625.2	590.0	543.1	504.1	474.7	429.8
55°	572.4	566.6	572.4	568.5	560.7	545.1	513.8	474.7	441.5	416.1	375.1
57.5°	506.0	506.0	508.0	500.1	490.4	472.8	445.4	414.2	384.9	363.4	330.2
60°	445.4	449.3	447.4	439.6	429.8	410.3	388.8	357.5	332.1	316.5	285.2



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	302.8	302.8	297.0	291.1	277.4	259.8	244.2	224.7	211.0	197.3	177.8
70°	257.9	261.8	254.0	244.2	234.4	222.7	205.1	189.5	175.8	166.1	150.4
72.5°	222.7	220.8	214.9	205.1	197.3	183.6	168.0	156.3	144.6	136.8	125.0
75°	183.6	183.6	177.8	170.0	160.2	148.5	136.8	127.0	117.2	109.4	103.5
77.5°	146.5	148.5	142.6	136.8	128.9	117.2	107.5	99.6	91.8	86.0	82.1
80°	113.3	115.3	109.4	105.5	95.7	89.9	82.1	74.2	68.4	64.5	62.5
82.5°	86.0	84.0	80.1	78.1	70.3	64.5	56.7	52.7	48.8	44.9	44.9
85°	56.7	54.7	52.7	50.8	44.9	39.1	37.1	33.2	29.3	27.4	27.4
87.5°	29.3	29.3	27.4	25.4	23.4	19.5	17.6	13.7	11.7	11.7	11.7
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°	1824.8	1824.8	1824.8
1°	1816.9	1809.1	1807.2
2°	1793.5	1781.8	1783.7
3°	1772.0	1758.3	1744.6
4°	1744.6	1723.2	1723.2
5°	1721.2	1699.7	1693.9
6°	1699.7	1664.5	1656.7
7°	1680.2	1637.2	1623.5
8°	1647.0	1604.0	1590.3
9°	1623.5	1576.6	1563.0
10°	1592.3	1545.4	1520.0
11°	1566.9	1514.1	1494.6
12°	1539.5	1475.0	1455.5
13°	1508.3	1441.8	1430.1
14°	1478.9	1414.5	1393.0
15°	1447.7	1381.3	1355.9
16°	1414.5	1348.0	1324.6
17°	1387.1	1312.9	1295.3
18°	1359.8	1281.6	1254.3
19°	1326.6	1252.3	1221.1
20°	1297.3	1215.2	1189.8
21°	1266.0	1187.8	1160.5
22.5°	1223.0	1135.1	1109.7
23°	1209.3	1119.5	1092.1
24°	1178.1	1088.2	1064.8
25°	1146.8	1064.8	1039.4
26°	1119.5	1029.6	1006.2
27°	1092.1	1002.2	976.8
28°	1062.8	972.9	953.4
29°	1033.5	941.7	922.1
30°	1002.2	920.2	887.0
32.5°	924.1	849.9	822.5
35°	847.9	783.4	760.0
37.5°	773.7	720.9	699.4
40°	709.2	662.3	640.8
42.5°	642.8	599.8	578.3
45°	574.4	539.2	517.7
47.5°	511.9	482.6	459.1
50°	455.2	425.9	414.2
52.5°	400.5	381.0	386.8
55°	349.7	349.7	347.8
57.5°	300.9	314.5	316.5
60°	263.7	281.3	285.2



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	181.7	191.5	195.4
70°	156.3	164.1	166.1
72.5°	132.9	138.7	142.6
75°	107.5	115.3	115.3
77.5°	87.9	91.8	93.8
80°	66.4	68.4	70.3
82.5°	46.9	48.8	50.8
85°	27.4	29.3	31.3
87.5°	11.7	11.7	11.7
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°	394.6	398.6	392.7	382.9	373.2	355.6	336.0	308.7	289.1	273.5	246.2
65°	345.8	347.8	343.9	334.1	324.3	306.7	287.2	263.7	248.1	232.5	209.0

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62.5°	236.4	250.1	252.0
65°	207.1	218.8	220.8

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Scaled Data Report



(END OF REPORT)