

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: P838631

Luminaire Tested: HCSQ645D010-HM64560840-61SQLWW

Issue Date: 5/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P838631
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-HM64560840-61SQLWW
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: -

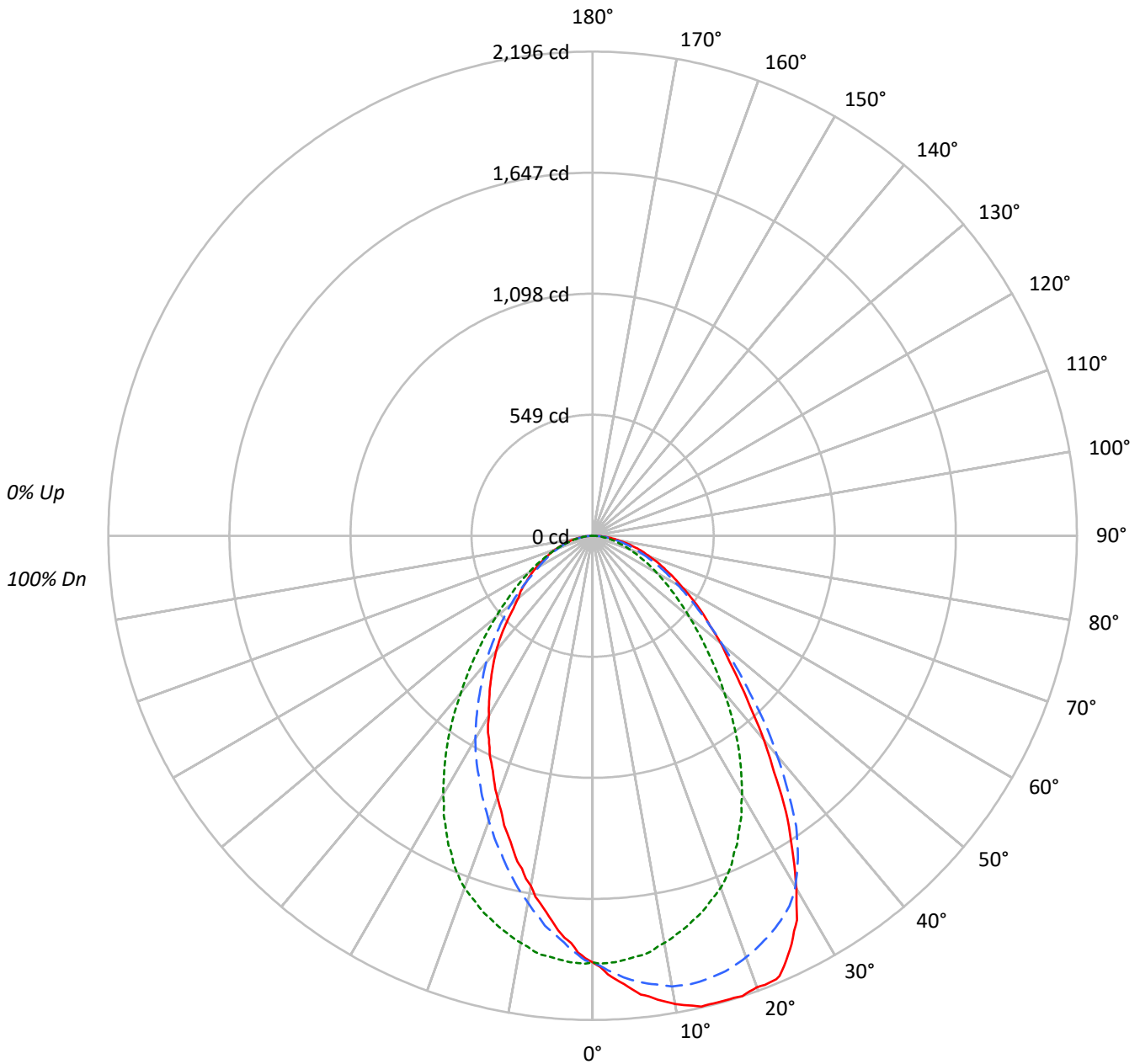
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3658.8 lumens
Efficiency: N/A
Efficacy: 79.7 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										
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	100	100	100	100		
	1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	92	91	89	87	87	87	87	87	87		
	2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75	75	75	75	75	75		
	3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66	66	66	66	66	66		
	4	87	76	69	63	85	75	68	62	73	66	62	71	65	61	68	64	60	58	58	58	58	58	58		
	5	81	69	61	55	79	68	61	55	66	60	55	64	59	54	63	58	53	51	51	51	51	51	51		
	6	75	63	55	49	74	62	55	49	61	54	49	59	53	48	58	52	48	46	46	46	46	46	46		
	7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	42	42	42	42	42	42		
	8	66	53	46	40	64	53	45	40	51	45	40	50	44	40	49	44	39	38	38	38	38	38	38		
	9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34	34	34	34	34	34		
	10	58	46	39	34	57	45	38	34	44	38	34	44	38	33	43	37	33	32	32	32	32	32	32		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	187444	187444	187444	187444	187444
5°	200851	196718	187149	177483	174663
10°	212135	204191	184424	166078	158543
15°	219812	207972	180136	153949	144191
20°	224670	209721	175124	141804	130062
25°	224085	209692	165413	129978	117804
30°	206699	205658	151551	118876	105206
35°	180801	190232	135731	106330	95296
40°	152728	164653	117369	95099	85931
45°	129139	137934	100464	83435	75214
50°	114586	115671	86177	72748	66192
55°	102521	99016	74517	62627	62272
60°	91509	86287	65023	54192	58610
65°	84057	76688	56504	50338	53662
70°	77439	68659	49879	46934	49879
75°	72876	61254	43419	42633	45739
80°	67058	54896	38159	39275	41618
85°	66802	49463	32234	32234	36791

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 40°
 Vertical Angle: 45°
 Luminance: 139071 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	182.5	5.0
10°-20°	508.6	13.9
20°-30°	725.5	19.8
30°-40°	747.7	20.4
40°-50°	601.9	16.5
50°-60°	425.6	11.6
60°-70°	275.9	7.5
70°-80°	148.2	4.1
80°-90°	42.8	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°	1416.7	38.7
0°-40°	2164.4	59.2
0°-60°	3192.0	87.2
0°-90°	3658.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3658.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1935	1935	1935	1935	1935	
5°	2065	2023	1924	1825	1796	200
15°	2192	2074	1796	1535	1438	620
25°	2096	1962	1548	1216	1102	955
35°	1529	1609	1148	899	806	949
45°	943	1007	733	609	549	736
55°	607	586	441	371	369	543
65°	367	335	246	220	234	366
75°	195	164	116	114	122	207
85°	60	44	29	29	33	66
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°	1934.9	1934.9	1934.9	1934.9	1934.9	1934.9	1934.9	1934.9	1934.9	1934.9	1934.9
1°	1955.6	1963.9	1957.6	1957.6	1951.4	1949.4	1953.5	1947.3	1945.2	1941.1	1932.8
2°	1990.8	1984.6	1982.5	1984.6	1972.1	1972.1	1965.9	1953.5	1947.3	1939.0	1916.2
3°	2015.6	2011.5	2007.4	2005.3	1992.9	1982.5	1974.2	1959.7	1947.3	1936.9	1903.8
4°	2038.4	2038.4	2034.3	2026.0	2013.6	2001.1	1984.6	1968.0	1949.4	1930.7	1887.2
5°	2065.4	2067.4	2048.8	2046.7	2032.2	2013.6	1994.9	1972.1	1949.4	1924.5	1876.8
6°	2092.3	2081.9	2077.8	2063.3	2042.6	2026.0	2003.2	1978.4	1947.3	1918.3	1854.1
7°	2104.7	2102.7	2092.3	2077.8	2059.1	2032.2	2009.4	1976.3	1943.1	1914.1	1837.5
8°	2125.4	2125.4	2113.0	2094.4	2067.4	2042.6	2013.6	1974.2	1941.1	1903.8	1814.7
9°	2139.9	2139.9	2123.4	2106.8	2081.9	2048.8	2015.6	1972.1	1930.7	1887.2	1794.0
10°	2156.5	2152.4	2139.9	2115.1	2094.4	2057.1	2015.6	1970.1	1924.5	1874.8	1773.3
11°	2168.9	2162.7	2148.2	2129.6	2096.4	2059.1	2015.6	1970.1	1916.2	1862.3	1752.6
12°	2179.3	2175.2	2156.5	2133.7	2100.6	2063.3	2013.6	1961.8	1901.7	1845.8	1725.6
13°	2191.7	2179.3	2160.7	2139.9	2102.7	2059.1	2005.3	1949.4	1891.3	1831.3	1702.8
14°	2189.7	2187.6	2171.0	2142.0	2100.6	2055.0	2003.2	1936.9	1876.8	1814.7	1675.9
15°	2191.7	2189.7	2171.0	2144.1	2098.5	2048.8	1997.0	1928.6	1862.3	1796.1	1649.0
16°	2191.7	2191.7	2166.9	2139.9	2096.4	2042.6	1984.6	1920.4	1847.8	1781.6	1626.2
17°	2191.7	2191.7	2171.0	2133.7	2090.2	2038.4	1972.1	1903.8	1831.3	1760.8	1593.0
18°	2195.9	2189.7	2162.7	2131.7	2081.9	2028.1	1963.9	1891.3	1816.8	1738.1	1570.3
19°	2185.5	2181.4	2158.6	2119.2	2075.7	2015.6	1951.4	1876.8	1802.3	1719.4	1543.3
20°	2179.3	2185.5	2154.4	2113.0	2063.3	2005.3	1939.0	1862.3	1781.6	1698.7	1516.4
21°	2181.4	2179.3	2146.2	2102.7	2055.0	1990.8	1924.5	1845.8	1758.8	1673.8	1491.5
22.5°	2177.2	2171.0	2135.8	2088.1	2030.1	1972.1	1899.6	1818.8	1725.6	1630.3	1443.9
23°	2168.9	2162.7	2135.8	2084.0	2021.9	1963.9	1887.2	1802.3	1713.2	1615.8	1431.5
24°	2135.8	2133.7	2121.3	2069.5	2011.5	1947.3	1872.7	1775.3	1675.9	1574.4	1400.4
25°	2096.4	2100.6	2094.4	2061.2	1994.9	1928.6	1849.9	1742.2	1640.7	1547.5	1363.1
26°	2059.1	2059.1	2055.0	2042.6	1978.4	1907.9	1816.8	1702.8	1605.5	1508.1	1323.7
27°	2011.5	2019.8	2011.5	2005.3	1961.8	1885.1	1781.6	1675.9	1566.1	1470.8	1290.6
28°	1974.2	1974.2	1970.1	1959.7	1945.2	1858.2	1744.3	1636.5	1528.8	1437.7	1253.3
29°	1907.9	1920.4	1922.4	1924.5	1922.4	1823.0	1709.1	1593.0	1489.5	1390.0	1218.1
30°	1847.8	1860.3	1868.6	1883.1	1885.1	1791.9	1667.6	1557.8	1452.2	1354.8	1187.0
32.5°	1684.2	1707.0	1729.8	1754.6	1767.1	1698.7	1566.1	1446.0	1338.2	1251.2	1091.7
35°	1528.8	1535.0	1559.9	1617.9	1630.3	1586.8	1446.0	1332.0	1230.5	1147.7	1002.6
37.5°	1352.7	1365.2	1400.4	1466.7	1470.8	1435.6	1338.2	1205.7	1110.4	1037.9	911.5
40°	1207.7	1213.9	1238.8	1294.7	1313.4	1290.6	1205.7	1085.5	998.5	928.1	824.5
42.5°	1062.7	1071.0	1102.1	1145.6	1172.5	1145.6	1071.0	967.4	882.5	830.7	741.6
45°	942.6	952.9	981.9	1006.8	1015.1	998.5	932.2	847.3	787.2	733.3	665.0
47.5°	839.0	849.3	870.1	880.4	890.8	874.2	822.4	752.0	691.9	648.4	586.3
50°	760.3	758.2	772.7	776.8	776.8	758.2	714.7	656.7	607.0	571.8	520.0
52.5°	671.2	675.3	685.7	681.5	679.5	662.9	625.6	575.9	534.5	503.4	455.7
55°	607.0	600.8	607.0	602.8	594.5	578.0	544.8	503.4	468.2	441.2	397.7
57.5°	536.5	536.5	538.6	530.3	520.0	501.3	472.3	439.2	408.1	385.3	350.1
60°	472.3	476.5	474.4	466.1	455.7	435.0	412.2	379.1	352.2	335.6	302.5



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	321.1	321.1	314.9	308.7	294.2	275.5	258.9	238.2	223.7	209.2	188.5
70°	273.4	277.6	269.3	258.9	248.6	236.2	217.5	200.9	186.4	176.1	159.5
72.5°	236.2	234.1	227.9	217.5	209.2	194.7	178.2	165.7	153.3	145.0	132.6
75°	194.7	194.7	188.5	180.2	169.9	157.4	145.0	134.7	124.3	116.0	109.8
77.5°	155.4	157.4	151.2	145.0	136.7	124.3	113.9	105.7	97.4	91.1	87.0
80°	120.2	122.2	116.0	111.9	101.5	95.3	87.0	78.7	72.5	68.4	66.3
82.5°	91.1	89.1	84.9	82.9	74.6	68.4	60.1	55.9	51.8	47.6	47.6
85°	60.1	58.0	55.9	53.9	47.6	41.4	39.4	35.2	31.1	29.0	29.0
87.5°	31.1	31.1	29.0	26.9	24.9	20.7	18.6	14.5	12.4	12.4	12.4
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°	1934.9	1934.9	1934.9
1°	1926.6	1918.3	1916.2
2°	1901.7	1889.3	1891.3
3°	1878.9	1864.4	1849.9
4°	1849.9	1827.1	1827.1
5°	1825.1	1802.3	1796.1
6°	1802.3	1765.0	1756.7
7°	1781.6	1736.0	1721.5
8°	1746.3	1700.8	1686.3
9°	1721.5	1671.8	1657.3
10°	1688.3	1638.6	1611.7
11°	1661.4	1605.5	1584.8
12°	1632.4	1564.0	1543.3
13°	1599.3	1528.8	1516.4
14°	1568.2	1499.8	1477.0
15°	1535.0	1464.6	1437.7
16°	1499.8	1429.4	1404.5
17°	1470.8	1392.1	1373.5
18°	1441.8	1359.0	1330.0
19°	1406.6	1327.9	1294.7
20°	1375.5	1288.5	1261.6
21°	1342.4	1259.5	1230.5
22.5°	1296.8	1203.6	1176.7
23°	1282.3	1187.0	1158.0
24°	1249.2	1153.9	1129.0
25°	1216.0	1129.0	1102.1
26°	1187.0	1091.7	1066.9
27°	1158.0	1062.7	1035.8
28°	1126.9	1031.6	1010.9
29°	1095.9	998.5	977.8
30°	1062.7	975.7	940.5
32.5°	979.9	901.1	872.1
35°	899.1	830.7	805.8
37.5°	820.3	764.4	741.6
40°	752.0	702.3	679.5
42.5°	681.5	636.0	613.2
45°	609.0	571.8	549.0
47.5°	542.8	511.7	486.8
50°	482.7	451.6	439.2
52.5°	424.7	404.0	410.2
55°	370.8	370.8	368.7
57.5°	319.0	333.5	335.6
60°	279.7	298.3	302.5



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	192.7	203.0	207.2
70°	165.7	174.0	176.1
72.5°	140.9	147.1	151.2
75°	113.9	122.2	122.2
77.5°	93.2	97.4	99.4
80°	70.4	72.5	74.6
82.5°	49.7	51.8	53.9
85°	29.0	31.1	33.1
87.5°	12.4	12.4	12.4
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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Peachtree City, GA 30269

Scaled Data Report





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

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Scaled Data Report





62.5°	418.5	422.6	416.4	406.0	395.7	377.0	356.3	327.3	306.6	290.0	261.0
65°	366.7	368.7	364.6	354.2	343.9	325.2	304.5	279.7	263.1	246.5	221.7

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Scaled Data Report



62.5°	250.7	265.2	267.2
65°	219.6	232.0	234.1

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Scaled Data Report



(END OF REPORT)