

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: P838681

Luminaire Tested: HCSQ650D010-HM64560930-61SQLWW

Issue Date: 5/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P838681  
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-HM64560930-61SQLWW  
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: -

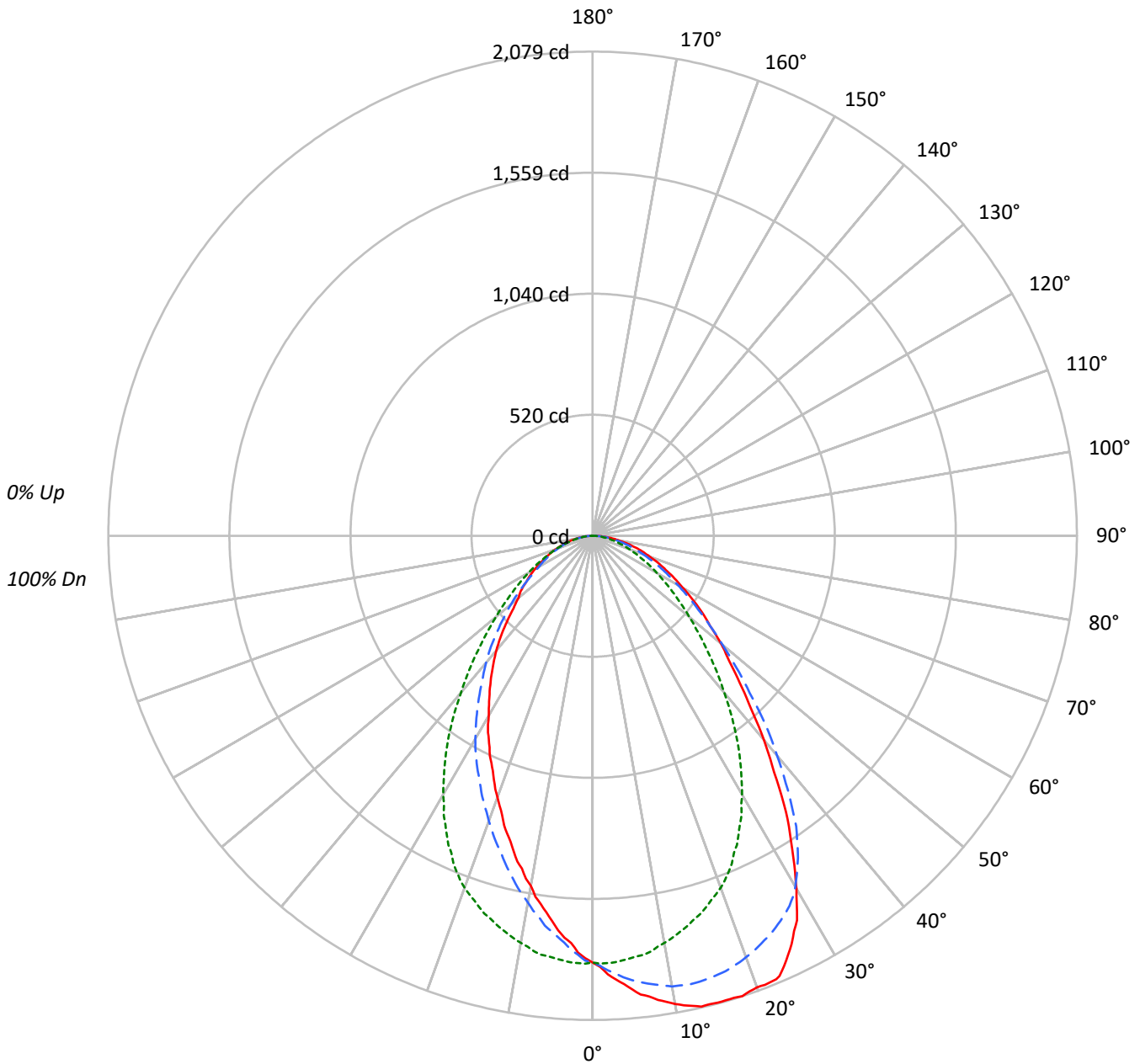
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3464.2 lumens  
Efficiency: N/A  
Efficacy: 69.7 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): 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					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°	177466	177466	177466	177466	177466
5°	190164	186254	177191	168040	165366
10°	200852	193326	174607	157244	150103
15°	208118	196910	170548	145766	136519
20°	212721	198562	165804	134268	123144
25°	212166	198538	156605	123063	111540
30°	195703	194724	143486	112556	99613
35°	171186	180115	128505	100666	90235
40°	144609	155890	111122	90041	81353
45°	122261	130598	95121	78996	71214
50°	108482	109522	81580	68875	62666
55°	97065	93746	70565	59300	58962
60°	86645	81705	61555	51305	55490
65°	79588	72608	53502	47656	50797
70°	73332	65005	47217	44441	47217
75°	69021	57997	41098	40387	43306
80°	63487	51967	36095	37211	39387
85°	63246	46851	30567	30567	34902

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 40°  
 Vertical Angle: 45°  
 Luminance: 131673 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	172.8	5.0
10°-20°	481.6	13.9
20°-30°	686.9	19.8
30°-40°	707.9	20.4
40°-50°	569.9	16.5
50°-60°	403.0	11.6
60°-70°	261.2	7.5
70°-80°	140.3	4.1
80°-90°	40.5	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°	1341.3	38.7
0°-40°	2049.3	59.2
0°-60°	3022.2	87.2
0°-90°	3464.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3464.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1832	1832	1832	1832	1832	
5°	1956	1915	1822	1728	1700	189
15°	2075	1963	1700	1453	1361	587
25°	1985	1857	1465	1151	1044	904
35°	1448	1523	1087	851	763	899
45°	892	953	694	577	520	697
55°	575	555	418	351	349	514
65°	347	317	233	208	222	346
75°	184	155	110	108	116	196
85°	57	42	28	28	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°	1831.9	1831.9	1831.9	1831.9	1831.9	1831.9	1831.9	1831.9	1831.9	1831.9	1831.9
1°	1851.5	1859.4	1853.5	1853.5	1847.6	1845.7	1849.6	1843.7	1841.7	1837.8	1830.0
2°	1884.9	1879.0	1877.0	1879.0	1867.2	1867.2	1861.3	1849.6	1843.7	1835.8	1814.3
3°	1908.4	1904.5	1900.6	1898.6	1886.8	1877.0	1869.2	1855.5	1843.7	1833.9	1802.5
4°	1930.0	1930.0	1926.1	1918.2	1906.5	1894.7	1879.0	1863.3	1845.7	1828.0	1786.8
5°	1955.5	1957.5	1939.8	1937.8	1924.1	1906.5	1888.8	1867.2	1845.7	1822.1	1777.0
6°	1981.0	1971.2	1967.3	1953.5	1933.9	1918.2	1896.6	1873.1	1843.7	1816.2	1755.4
7°	1992.8	1990.8	1981.0	1967.3	1949.6	1924.1	1902.5	1871.2	1839.8	1812.3	1739.7
8°	2012.4	2012.4	2000.6	1983.0	1957.5	1933.9	1906.5	1869.2	1837.8	1802.5	1718.2
9°	2026.1	2026.1	2010.4	1994.7	1971.2	1939.8	1908.4	1867.2	1828.0	1786.8	1698.6
10°	2041.8	2037.9	2026.1	2002.6	1983.0	1947.6	1908.4	1865.3	1822.1	1775.0	1678.9
11°	2053.6	2047.7	2033.9	2016.3	1984.9	1949.6	1908.4	1865.3	1814.3	1763.3	1659.3
12°	2063.4	2059.4	2041.8	2020.2	1988.8	1953.5	1906.5	1857.4	1800.5	1747.6	1633.8
13°	2075.1	2063.4	2045.7	2026.1	1990.8	1949.6	1898.6	1845.7	1790.7	1733.9	1612.3
14°	2073.2	2071.2	2055.5	2028.1	1988.8	1945.7	1896.6	1833.9	1777.0	1718.2	1586.8
15°	2075.1	2073.2	2055.5	2030.0	1986.9	1939.8	1890.8	1826.0	1763.3	1700.5	1561.3
16°	2075.1	2075.1	2051.6	2026.1	1984.9	1933.9	1879.0	1818.2	1749.5	1686.8	1539.7
17°	2075.1	2075.1	2055.5	2020.2	1979.0	1930.0	1867.2	1802.5	1733.9	1667.2	1508.3
18°	2079.1	2073.2	2047.7	2018.3	1971.2	1920.2	1859.4	1790.7	1720.1	1645.6	1486.7
19°	2069.3	2065.3	2043.8	2006.5	1965.3	1908.4	1847.6	1777.0	1706.4	1627.9	1461.2
20°	2063.4	2069.3	2039.8	2000.6	1953.5	1898.6	1835.8	1763.3	1686.8	1608.3	1435.7
21°	2065.3	2063.4	2032.0	1990.8	1945.7	1884.9	1822.1	1747.6	1665.2	1584.8	1412.2
22.5°	2061.4	2055.5	2022.2	1977.1	1922.1	1867.2	1798.6	1722.1	1633.8	1543.6	1367.1
23°	2053.6	2047.7	2022.2	1973.1	1914.3	1859.4	1786.8	1706.4	1622.1	1529.9	1355.3
24°	2022.2	2020.2	2008.4	1959.4	1904.5	1843.7	1773.1	1680.9	1586.8	1490.6	1325.9
25°	1984.9	1988.8	1983.0	1951.6	1888.8	1826.0	1751.5	1649.5	1553.4	1465.1	1290.6
26°	1949.6	1949.6	1945.7	1933.9	1873.1	1806.4	1720.1	1612.3	1520.1	1427.9	1253.3
27°	1904.5	1912.3	1904.5	1898.6	1857.4	1784.9	1686.8	1586.8	1482.8	1392.6	1221.9
28°	1869.2	1869.2	1865.3	1855.5	1841.7	1759.4	1651.5	1549.5	1447.5	1361.2	1186.6
29°	1806.4	1818.2	1820.2	1822.1	1820.2	1726.0	1618.1	1508.3	1410.2	1316.1	1153.3
30°	1749.5	1761.3	1769.2	1782.9	1784.9	1696.6	1578.9	1475.0	1374.9	1282.7	1123.9
32.5°	1594.6	1616.2	1637.7	1661.3	1673.1	1608.3	1482.8	1369.0	1267.0	1184.7	1033.6
35°	1447.5	1453.4	1476.9	1531.8	1543.6	1502.4	1369.0	1261.2	1165.1	1086.6	949.3
37.5°	1280.8	1292.5	1325.9	1388.7	1392.6	1359.2	1267.0	1141.5	1051.3	982.6	863.0
40°	1143.5	1149.4	1172.9	1225.9	1243.5	1221.9	1141.5	1027.8	945.4	878.7	780.6
42.5°	1006.2	1014.0	1043.5	1084.6	1110.1	1084.6	1014.0	916.0	835.5	786.5	702.2
45°	892.4	902.2	929.7	953.2	961.1	945.4	882.6	802.2	745.3	694.3	629.6
47.5°	794.4	804.2	823.8	833.6	843.4	827.7	778.7	712.0	655.1	613.9	555.1
50°	719.8	717.9	731.6	735.5	735.5	717.9	676.7	621.8	574.7	541.3	492.3
52.5°	635.5	639.4	649.2	645.3	643.3	627.6	592.3	545.3	506.0	476.6	431.5
55°	574.7	568.8	574.7	570.8	562.9	547.2	515.8	476.6	443.3	417.8	376.6
57.5°	508.0	508.0	510.0	502.1	492.3	474.7	447.2	415.8	386.4	364.8	331.5
60°	447.2	451.1	449.2	441.3	431.5	411.9	390.3	358.9	333.4	317.7	286.4



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**CANDELA DISTRIBUTION (continued):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	<i>304.0</i>	304.0	298.1	292.2	278.5	260.9	245.2	225.6	211.8	198.1	178.5
70°	<i>258.9</i>	262.8	255.0	245.2	235.4	223.6	205.9	190.3	176.5	166.7	151.0
72.5°	<i>223.6</i>	221.6	215.8	205.9	198.1	184.4	168.7	156.9	145.1	137.3	125.5
75°	<i>184.4</i>	184.4	178.5	170.6	160.8	149.1	137.3	127.5	117.7	109.8	104.0
77.5°	<i>147.1</i>	149.1	143.2	137.3	129.5	117.7	107.9	100.0	92.2	86.3	82.4
80°	<i>113.8</i>	115.7	109.8	105.9	96.1	90.2	82.4	74.5	68.6	64.7	62.8
82.5°	<i>86.3</i>	84.3	80.4	78.5	70.6	64.7	56.9	53.0	49.0	45.1	45.1
85°	<i>56.9</i>	54.9	53.0	51.0	45.1	39.2	37.3	33.3	29.4	27.5	27.5
87.5°	<i>29.4</i>	29.4	27.5	25.5	23.5	19.6	17.7	13.7	11.8	11.8	11.8
90°	<i>0.0</i>	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°	1831.9	1831.9	1831.9
1°	1824.1	1816.2	1814.3
2°	1800.5	1788.8	1790.7
3°	1779.0	1765.2	1751.5
4°	1751.5	1729.9	1729.9
5°	1728.0	1706.4	1700.5
6°	1706.4	1671.1	1663.2
7°	1686.8	1643.6	1629.9
8°	1653.4	1610.3	1596.6
9°	1629.9	1582.8	1569.1
10°	1598.5	1551.4	1525.9
11°	1573.0	1520.1	1500.5
12°	1545.6	1480.8	1461.2
13°	1514.2	1447.5	1435.7
14°	1484.8	1420.0	1398.5
15°	1453.4	1386.7	1361.2
16°	1420.0	1353.3	1329.8
17°	1392.6	1318.0	1300.4
18°	1365.1	1286.7	1259.2
19°	1331.8	1257.2	1225.9
20°	1302.4	1220.0	1194.5
21°	1271.0	1192.5	1165.1
22.5°	1227.8	1139.6	1114.1
23°	1214.1	1123.9	1096.4
24°	1182.7	1092.5	1068.9
25°	1151.3	1068.9	1043.5
26°	1123.9	1033.6	1010.1
27°	1096.4	1006.2	980.7
28°	1067.0	976.8	957.2
29°	1037.6	945.4	925.8
30°	1006.2	923.8	890.5
32.5°	927.7	853.2	825.7
35°	851.2	786.5	763.0
37.5°	776.7	723.7	702.2
40°	712.0	664.9	643.3
42.5°	645.3	602.1	580.6
45°	576.6	541.3	519.8
47.5°	513.9	484.5	460.9
50°	457.0	427.6	415.8
52.5°	402.1	382.5	388.4
55°	351.1	351.1	349.1
57.5°	302.1	315.8	317.7
60°	264.8	282.4	286.4





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**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
67.5°	182.4	192.2	196.1
70°	156.9	164.8	166.7
72.5°	133.4	139.3	143.2
75°	107.9	115.7	115.7
77.5°	88.3	92.2	94.1
80°	66.7	68.6	70.6
82.5°	47.1	49.0	51.0
85°	27.5	29.4	31.4
87.5°	11.8	11.8	11.8
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



Report Generated By 670245859 / DESKTOP-T8S5UU9

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Scaled Data Report





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

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Scaled Data Report



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Scaled Data Report





62.5°	396.2	400.1	394.2	384.4	374.6	357.0	337.4	309.9	290.3	274.6	247.1
65°	347.2	349.1	345.2	335.4	325.6	307.9	288.3	264.8	249.1	233.4	209.9

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Scaled Data Report



62.5°	237.3	251.1	253.0
65°	207.9	219.7	221.6

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Scaled Data Report



(END OF REPORT)