

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: P838646

Luminaire Tested: HCSQ645D010-HM64560935-61SQLWW

Issue Date: 5/21/2024



**Test Information**

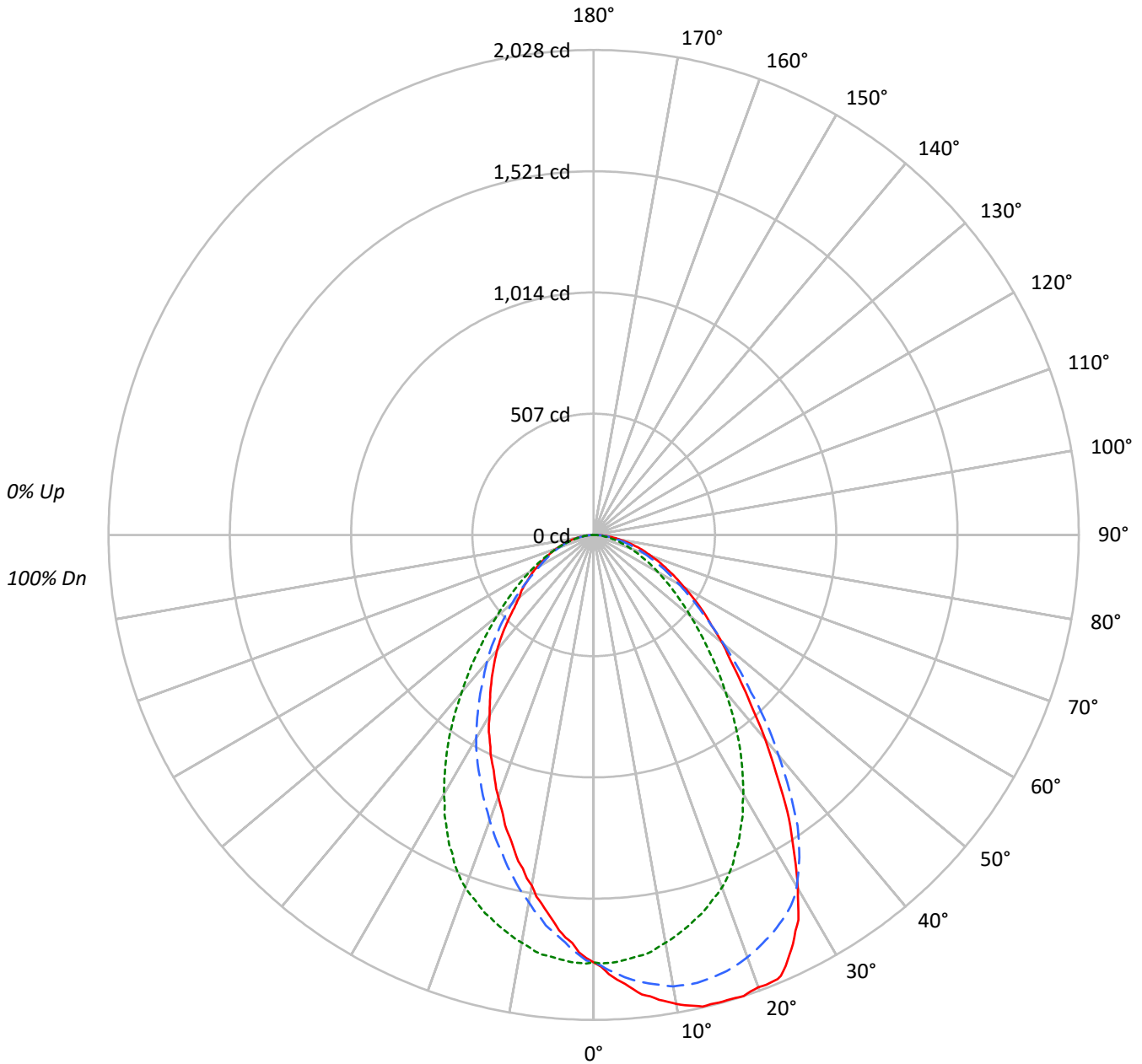
Test Method: LM-79-2019  
Report Number: P838646  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-166-5)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ645D010-HM64560935-61SQLWW  
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3379.5 lumens  
Efficiency: N/A  
Efficacy: 73.6 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 (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	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°	173136	173136	173136	173136	173136
5°	185515	181703	172864	163927	161330
10°	195943	188600	170347	153408	146443
15°	203033	192096	166386	142205	133179
20°	207515	193711	161752	130979	120134
25°	206982	193685	152778	120059	108814
30°	190926	189959	139984	109804	97175
35°	166999	175715	125359	98206	88023
40°	141068	152083	108403	87840	79367
45°	119274	127406	92806	77078	69474
50°	105830	106839	79591	67187	61129
55°	94684	91466	68842	57847	57526
60°	84533	79709	60063	50046	54134
65°	77639	70831	52195	46487	49559
70°	71548	63404	46056	43365	46056
75°	67336	56575	40125	39376	42258
80°	61925	50712	35202	36318	38438
85°	61689	45739	29789	29789	34013

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 40°  
 Vertical Angle: 45°  
 Luminance: 128454 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	168.6	5.0
10°-20°	469.8	13.9
20°-30°	670.2	19.8
30°-40°	690.6	20.4
40°-50°	556.0	16.5
50°-60°	393.1	11.6
60°-70°	254.8	7.5
70°-80°	136.9	4.1
80°-90°	39.5	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°	1308.5	38.7
0°-40°	1999.2	59.2
0°-60°	2948.3	87.2
0°-90°	3379.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3379.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1787	1787	1787	1787	1787	
5°	1908	1868	1778	1686	1659	185
15°	2024	1915	1659	1418	1328	572
25°	1936	1812	1429	1123	1018	882
35°	1412	1486	1060	830	744	877
45°	871	930	677	563	507	680
55°	561	542	408	342	341	501
65°	339	309	228	203	216	338
75°	180	151	107	105	113	191
85°	56	41	27	27	31	61
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°	1787.2	1787.2	1787.2	1787.2	1787.2	1787.2	1787.2	1787.2	1787.2	1787.2	1787.2
1°	1806.3	1813.9	1808.2	1808.2	1802.5	1800.5	1804.4	1798.6	1796.7	1792.9	1785.2
2°	1838.8	1833.1	1831.2	1833.1	1821.6	1821.6	1815.9	1804.4	1798.6	1791.0	1769.9
3°	1861.8	1858.0	1854.1	1852.2	1840.7	1831.2	1823.5	1810.1	1798.6	1789.1	1758.5
4°	1882.8	1882.8	1879.0	1871.3	1859.9	1848.4	1833.1	1817.8	1800.5	1783.3	1743.1
5°	1907.7	1909.6	1892.4	1890.5	1877.1	1859.9	1842.6	1821.6	1800.5	1777.6	1733.6
6°	1932.6	1923.0	1919.2	1905.8	1886.7	1871.3	1850.3	1827.3	1798.6	1771.8	1712.5
7°	1944.1	1942.1	1932.6	1919.2	1902.0	1877.1	1856.0	1825.4	1794.8	1768.0	1697.2
8°	1963.2	1963.2	1951.7	1934.5	1909.6	1886.7	1859.9	1823.5	1792.9	1758.5	1676.2
9°	1976.6	1976.6	1961.3	1946.0	1923.0	1892.4	1861.8	1821.6	1783.3	1743.1	1657.0
10°	1991.9	1988.1	1976.6	1953.6	1934.5	1900.0	1861.8	1819.7	1777.6	1731.7	1637.9
11°	2003.4	1997.6	1984.2	1967.0	1936.4	1902.0	1861.8	1819.7	1769.9	1720.2	1618.8
12°	2012.9	2009.1	1991.9	1970.8	1940.2	1905.8	1859.9	1812.0	1756.5	1704.9	1593.9
13°	2024.4	2012.9	1995.7	1976.6	1942.1	1902.0	1852.2	1800.5	1747.0	1691.5	1572.8
14°	2022.5	2020.6	2005.3	1978.5	1940.2	1898.1	1850.3	1789.1	1733.6	1676.2	1548.0
15°	2024.4	2022.5	2005.3	1980.4	1938.3	1892.4	1844.6	1781.4	1720.2	1659.0	1523.1
16°	2024.4	2024.4	2001.5	1976.6	1936.4	1886.7	1833.1	1773.8	1706.8	1645.6	1502.1
17°	2024.4	2024.4	2005.3	1970.8	1930.7	1882.8	1821.6	1758.5	1691.5	1626.4	1471.4
18°	2028.2	2022.5	1997.6	1968.9	1923.0	1873.3	1813.9	1747.0	1678.1	1605.4	1450.4
19°	2018.7	2014.9	1993.8	1957.5	1917.3	1861.8	1802.5	1733.6	1664.7	1588.2	1425.5
20°	2012.9	2018.7	1990.0	1951.7	1905.8	1852.2	1791.0	1720.2	1645.6	1569.0	1400.6
21°	2014.9	2012.9	1982.3	1942.1	1898.1	1838.8	1777.6	1704.9	1624.5	1546.1	1377.7
22.5°	2011.0	2005.3	1972.8	1928.7	1875.2	1821.6	1754.6	1680.0	1593.9	1505.9	1333.7
23°	2003.4	1997.6	1972.8	1924.9	1867.5	1813.9	1743.1	1664.7	1582.4	1492.5	1322.2
24°	1972.8	1970.8	1959.4	1911.5	1858.0	1798.6	1729.8	1639.8	1548.0	1454.2	1293.5
25°	1936.4	1940.2	1934.5	1903.9	1842.6	1781.4	1708.7	1609.2	1515.4	1429.3	1259.0
26°	1902.0	1902.0	1898.1	1886.7	1827.3	1762.3	1678.1	1572.8	1482.9	1393.0	1222.7
27°	1858.0	1865.6	1858.0	1852.2	1812.0	1741.2	1645.6	1548.0	1446.6	1358.5	1192.1
28°	1823.5	1823.5	1819.7	1810.1	1796.7	1716.4	1611.1	1511.6	1412.1	1327.9	1157.6
29°	1762.3	1773.8	1775.7	1777.6	1775.7	1683.8	1578.6	1471.4	1375.8	1283.9	1125.1
30°	1706.8	1718.3	1725.9	1739.3	1741.2	1655.1	1540.3	1438.9	1341.3	1251.4	1096.4
32.5°	1555.6	1576.7	1597.7	1620.7	1632.2	1569.0	1446.6	1335.6	1236.1	1155.7	1008.4
35°	1412.1	1417.9	1440.8	1494.4	1505.9	1465.7	1335.6	1230.3	1136.6	1060.0	926.1
37.5°	1249.5	1261.0	1293.5	1354.7	1358.5	1326.0	1236.1	1113.6	1025.6	958.6	841.9
40°	1115.5	1121.3	1144.2	1195.9	1213.1	1192.1	1113.6	1002.6	922.3	857.2	761.5
42.5°	981.6	989.2	1018.0	1058.1	1083.0	1058.1	989.2	893.6	815.1	767.3	685.0
45°	870.6	880.2	907.0	929.9	937.6	922.3	861.0	782.6	727.1	677.4	614.2
47.5°	774.9	784.5	803.6	813.2	822.8	807.5	759.6	694.6	639.1	598.9	541.5
50°	702.2	700.3	713.7	717.5	717.5	700.3	660.1	606.6	560.6	528.1	480.3
52.5°	620.0	623.8	633.3	629.5	627.6	612.3	577.9	531.9	493.7	465.0	421.0
55°	560.6	554.9	560.6	556.8	549.2	533.9	503.2	465.0	432.4	407.6	367.4
57.5°	495.6	495.6	497.5	489.8	480.3	463.1	436.3	405.6	376.9	355.9	323.4
60°	436.3	440.1	438.2	430.5	421.0	401.8	380.8	350.2	325.3	310.0	279.4



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**CANDELA DISTRIBUTION (continued):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	296.6	296.6	290.8	285.1	271.7	254.5	239.2	220.0	206.7	193.3	174.1
70°	252.6	256.4	248.7	239.2	229.6	218.1	200.9	185.6	172.2	162.6	147.3
72.5°	218.1	216.2	210.5	200.9	193.3	179.9	164.6	153.1	141.6	133.9	122.5
75°	179.9	179.9	174.1	166.5	156.9	145.4	133.9	124.4	114.8	107.2	101.4
77.5°	143.5	145.4	139.7	133.9	126.3	114.8	105.2	97.6	89.9	84.2	80.4
80°	111.0	112.9	107.2	103.3	93.8	88.0	80.4	72.7	67.0	63.1	61.2
82.5°	84.2	82.3	78.5	76.5	68.9	63.1	55.5	51.7	47.8	44.0	44.0
85°	55.5	53.6	51.7	49.7	44.0	38.3	36.4	32.5	28.7	26.8	26.8
87.5°	28.7	28.7	26.8	24.9	23.0	19.1	17.2	13.4	11.5	11.5	11.5
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°	1787.2	1787.2	1787.2
1°	1779.5	1771.8	1769.9
2°	1756.5	1745.1	1747.0
3°	1735.5	1722.1	1708.7
4°	1708.7	1687.7	1687.7
5°	1685.7	1664.7	1659.0
6°	1664.7	1630.3	1622.6
7°	1645.6	1603.5	1590.1
8°	1613.0	1570.9	1557.5
9°	1590.1	1544.1	1530.8
10°	1559.5	1513.5	1488.7
11°	1534.6	1482.9	1463.8
12°	1507.8	1444.6	1425.5
13°	1477.2	1412.1	1400.6
14°	1448.5	1385.3	1364.3
15°	1417.9	1352.8	1327.9
16°	1385.3	1320.3	1297.3
17°	1358.5	1285.8	1268.6
18°	1331.8	1255.2	1228.4
19°	1299.2	1226.5	1195.9
20°	1270.5	1190.2	1165.3
21°	1239.9	1163.4	1136.6
22.5°	1197.8	1111.7	1086.8
23°	1184.4	1096.4	1069.6
24°	1153.8	1065.8	1042.8
25°	1123.2	1042.8	1018.0
26°	1096.4	1008.4	985.4
27°	1069.6	981.6	956.7
28°	1040.9	952.9	933.8
29°	1012.2	922.3	903.1
30°	981.6	901.2	868.7
32.5°	905.1	832.3	805.6
35°	830.4	767.3	744.3
37.5°	757.7	706.1	685.0
40°	694.6	648.7	627.6
42.5°	629.5	587.4	566.4
45°	562.6	528.1	507.1
47.5°	501.3	472.6	449.7
50°	445.8	417.1	405.6
52.5°	392.3	373.1	378.9
55°	342.5	342.5	340.6
57.5°	294.7	308.1	310.0
60°	258.3	275.5	279.4





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**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
67.5°	178.0	187.5	191.3
70°	153.1	160.7	162.6
72.5°	130.1	135.9	139.7
75°	105.2	112.9	112.9
77.5°	86.1	89.9	91.8
80°	65.1	67.0	68.9
82.5°	45.9	47.8	49.7
85°	26.8	28.7	30.6
87.5°	11.5	11.5	11.5
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°	386.5	390.3	384.6	375.0	365.5	348.2	329.1	302.3	283.2	267.9	241.1
65°	338.7	340.6	336.8	327.2	317.6	300.4	281.3	258.3	243.0	227.7	204.7

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Scaled Data Report





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Scaled Data Report



62.5°	231.5	244.9	246.8
65°	202.8	214.3	216.2

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Scaled Data Report



(END OF REPORT)