

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: P838671

Luminaire Tested: HCSQ650D010-HM64560840-61SQLWW

Issue Date: 5/21/2024

**Test Information**

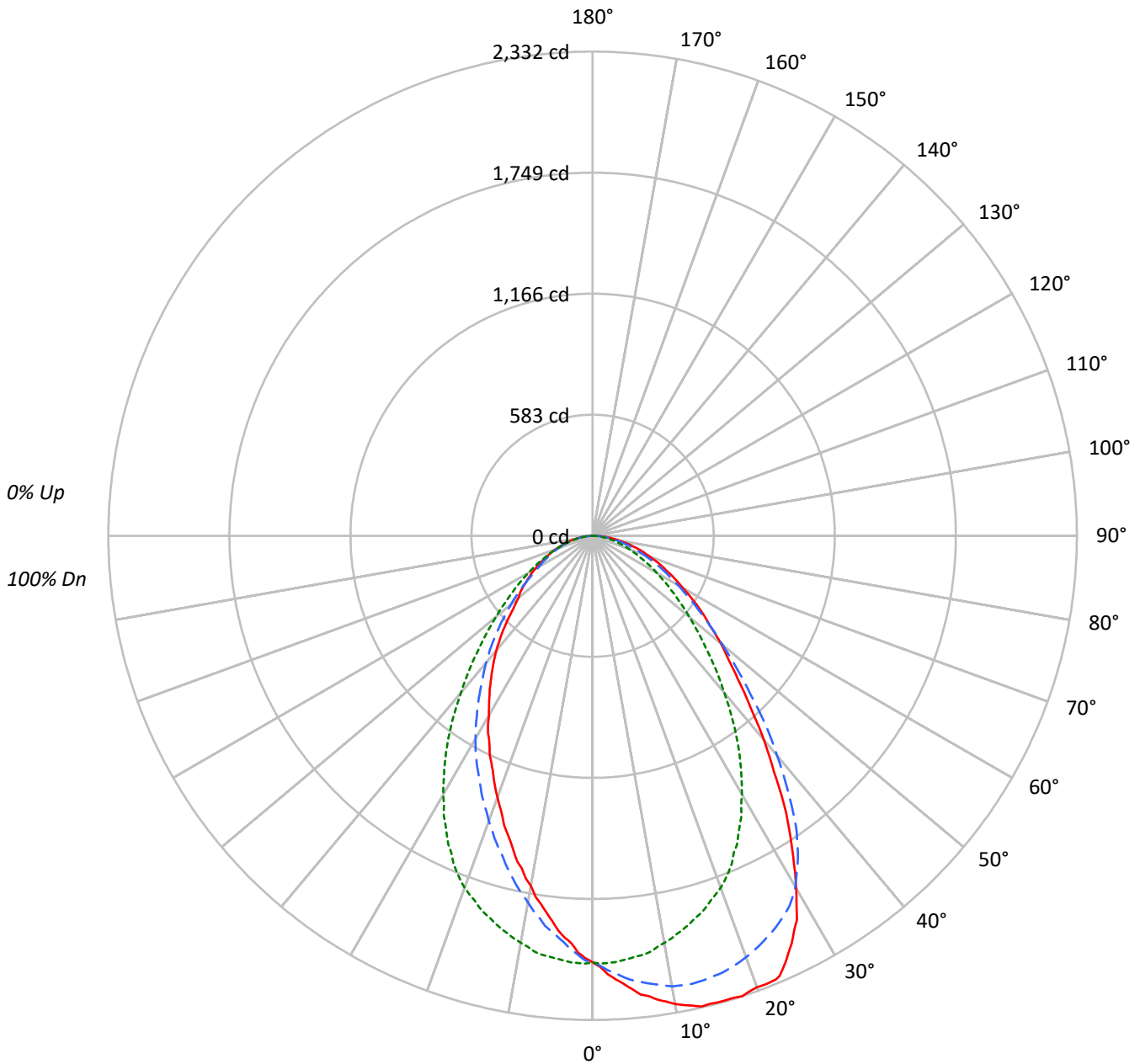
Test Method: LM-79-2019  
Report Number: P838671  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-166-5)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ650D010-HM64560840-61SQLWW  
Description: 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: 3884.7 lumens  
Efficiency: N/A  
Efficacy: 78.2 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): 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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CATALOG NUMBER: HCSQ650D010-HM64560840-61SQLWW

### 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°	199011	199011	199011	199011	199011
5°	213250	208864	198702	188433	185447
10°	225238	216797	195805	176338	168331
15°	233391	220815	191258	163457	153087
20°	238546	222670	185938	150567	138093
25°	237927	222642	175621	138006	125072
30°	219462	218360	160914	126214	111706
35°	191965	201981	144104	112894	101186
40°	162162	174821	124616	100967	91230
45°	137112	146449	106670	88586	79859
50°	121654	122815	91497	77240	70277
55°	108837	105138	79128	66495	66123
60°	97166	91625	69033	57525	62213
65°	89238	81421	59989	53433	56963
70°	82226	72879	52967	49851	52967
75°	77405	65053	46114	45290	48584
80°	71186	58299	40502	41730	44184
85°	70915	52575	34235	34235	39126

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 40°  
 Vertical Angle: 45°  
 Luminance: 147648 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	193.8	5.0
10°-20°	540.1	13.9
20°-30°	770.3	19.8
30°-40°	793.9	20.4
40°-50°	639.1	16.5
50°-60°	451.9	11.6
60°-70°	292.9	7.5
70°-80°	157.4	4.1
80°-90°	45.4	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°	1504.2	38.7
0°-40°	2298.0	59.2
0°-60°	3389.1	87.2
0°-90°	3884.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3884.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2054	2054	2054	2054	2054	
5°	2193	2148	2043	1938	1907	212
15°	2327	2202	1907	1630	1526	658
25°	2226	2083	1643	1291	1170	1014
35°	1623	1708	1218	955	856	1008
45°	1001	1069	779	647	583	782
55°	644	622	468	394	392	576
65°	389	355	262	233	248	388
75°	207	174	123	121	130	219
85°	64	47	31	31	35	70
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°	2054.3	2054.3	2054.3	2054.3	2054.3	2054.3	2054.3	2054.3	2054.3	2054.3	2054.3
1°	2076.3	2085.1	2078.5	2078.5	2071.9	2069.7	2074.1	2067.5	2065.3	2060.9	2052.1
2°	2113.7	2107.1	2104.9	2107.1	2093.9	2093.9	2087.3	2074.1	2067.5	2058.7	2034.5
3°	2140.1	2135.7	2131.3	2129.1	2115.9	2104.9	2096.1	2080.7	2067.5	2056.5	2021.3
4°	2164.3	2164.3	2159.9	2151.1	2137.9	2124.7	2107.1	2089.5	2069.7	2049.9	2003.7
5°	2192.9	2195.1	2175.3	2173.1	2157.7	2137.9	2118.1	2093.9	2069.7	2043.3	1992.7
6°	2221.5	2210.5	2206.1	2190.7	2168.7	2151.1	2126.9	2100.5	2067.5	2036.7	1968.5
7°	2234.7	2232.5	2221.5	2206.1	2186.3	2157.7	2133.5	2098.3	2063.1	2032.3	1950.9
8°	2256.7	2256.7	2243.5	2223.7	2195.1	2168.7	2137.9	2096.1	2060.9	2021.3	1926.8
9°	2272.1	2272.1	2254.5	2236.9	2210.5	2175.3	2140.1	2093.9	2049.9	2003.7	1904.8
10°	2289.7	2285.3	2272.1	2245.7	2223.7	2184.1	2140.1	2091.7	2043.3	1990.5	1882.8
11°	2302.9	2296.3	2280.9	2261.1	2225.9	2186.3	2140.1	2091.7	2034.5	1977.3	1860.8
12°	2313.9	2309.5	2289.7	2265.5	2230.3	2190.7	2137.9	2082.9	2019.1	1959.7	1832.2
13°	2327.1	2313.9	2294.1	2272.1	2232.5	2186.3	2129.1	2069.7	2008.1	1944.3	1808.0
14°	2324.9	2322.7	2305.1	2274.3	2230.3	2181.9	2126.9	2056.5	1992.7	1926.8	1779.4
15°	2327.1	2324.9	2305.1	2276.5	2228.1	2175.3	2120.3	2047.7	1977.3	1907.0	1750.8
16°	2327.1	2327.1	2300.7	2272.1	2225.9	2168.7	2107.1	2038.9	1961.9	1891.6	1726.6
17°	2327.1	2327.1	2305.1	2265.5	2219.3	2164.3	2093.9	2021.3	1944.3	1869.6	1691.4
18°	2331.5	2324.9	2296.3	2263.3	2210.5	2153.3	2085.1	2008.1	1929.0	1845.4	1667.2
19°	2320.5	2316.1	2291.9	2250.1	2203.9	2140.1	2071.9	1992.7	1913.6	1825.6	1638.6
20°	2313.9	2320.5	2287.5	2243.5	2190.7	2129.1	2058.7	1977.3	1891.6	1803.6	1610.0
21°	2316.1	2313.9	2278.7	2232.5	2181.9	2113.7	2043.3	1959.7	1867.4	1777.2	1583.6
22.5°	2311.7	2305.1	2267.7	2217.1	2155.5	2093.9	2016.9	1931.2	1832.2	1731.0	1533.0
23°	2302.9	2296.3	2267.7	2212.7	2146.7	2085.1	2003.7	1913.6	1819.0	1715.6	1519.8
24°	2267.7	2265.5	2252.3	2197.3	2135.7	2067.5	1988.3	1885.0	1779.4	1671.6	1486.9
25°	2225.9	2230.3	2223.7	2188.5	2118.1	2047.7	1964.1	1849.8	1742.0	1643.0	1447.3
26°	2186.3	2186.3	2181.9	2168.7	2100.5	2025.7	1929.0	1808.0	1704.6	1601.2	1405.5
27°	2135.7	2144.5	2135.7	2129.1	2082.9	2001.5	1891.6	1779.4	1662.8	1561.6	1370.3
28°	2096.1	2096.1	2091.7	2080.7	2065.3	1972.9	1852.0	1737.6	1623.2	1526.4	1330.7
29°	2025.7	2038.9	2041.1	2043.3	2041.1	1935.5	1814.6	1691.4	1581.4	1475.9	1293.3
30°	1961.9	1975.1	1983.9	1999.3	2001.5	1902.6	1770.6	1654.0	1541.8	1438.5	1260.3
32.5°	1788.2	1812.4	1836.6	1863.0	1876.2	1803.6	1662.8	1535.2	1420.9	1328.5	1159.1
35°	1623.2	1629.8	1656.2	1717.8	1731.0	1684.8	1535.2	1414.3	1306.5	1218.5	1064.6
37.5°	1436.3	1449.5	1486.9	1557.2	1561.6	1524.2	1420.9	1280.1	1178.9	1101.9	967.8
40°	1282.3	1288.9	1315.3	1374.7	1394.5	1370.3	1280.1	1152.5	1060.2	985.4	875.4
42.5°	1128.3	1137.1	1170.1	1216.3	1244.9	1216.3	1137.1	1027.2	937.0	882.0	787.4
45°	1000.8	1011.8	1042.6	1069.0	1077.7	1060.2	989.8	899.6	835.8	778.6	706.0
47.5°	890.8	901.8	923.8	934.8	945.8	928.2	873.2	798.4	734.6	688.4	622.5
50°	807.2	805.0	820.4	824.8	824.8	805.0	758.8	697.2	644.4	607.1	552.1
52.5°	712.6	717.0	728.0	723.6	721.4	703.8	664.2	611.5	567.5	534.5	483.9
55°	644.4	637.9	644.4	640.1	631.3	613.7	578.5	534.5	497.1	468.5	422.3
57.5°	569.7	569.7	571.9	563.1	552.1	532.3	501.5	466.3	433.3	409.1	371.7
60°	501.5	505.9	503.7	494.9	483.9	461.9	437.7	402.5	373.9	356.3	321.1



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**CANDELA DISTRIBUTION (continued):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	340.9	340.9	334.3	327.7	312.3	292.5	274.9	252.9	237.5	222.1	200.2
70°	290.3	294.7	285.9	274.9	263.9	250.7	230.9	213.4	198.0	187.0	169.4
72.5°	250.7	248.5	241.9	230.9	222.1	206.8	189.2	176.0	162.8	154.0	140.8
75°	206.8	206.8	200.2	191.4	180.4	167.2	154.0	143.0	132.0	123.2	116.6
77.5°	165.0	167.2	160.6	154.0	145.2	132.0	121.0	112.2	103.4	96.8	92.4
80°	127.6	129.8	123.2	118.8	107.8	101.2	92.4	83.6	77.0	72.6	70.4
82.5°	96.8	94.6	90.2	88.0	79.2	72.6	63.8	59.4	55.0	50.6	50.6
85°	63.8	61.6	59.4	57.2	50.6	44.0	41.8	37.4	33.0	30.8	30.8
87.5°	33.0	33.0	30.8	28.6	26.4	22.0	19.8	15.4	13.2	13.2	13.2
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°	2054.3	2054.3	2054.3
1°	2045.5	2036.7	2034.5
2°	2019.1	2005.9	2008.1
3°	1994.9	1979.5	1964.1
4°	1964.1	1939.9	1939.9
5°	1937.7	1913.6	1907.0
6°	1913.6	1874.0	1865.2
7°	1891.6	1843.2	1827.8
8°	1854.2	1805.8	1790.4
9°	1827.8	1775.0	1759.6
10°	1792.6	1739.8	1711.2
11°	1764.0	1704.6	1682.6
12°	1733.2	1660.6	1638.6
13°	1698.0	1623.2	1610.0
14°	1665.0	1592.4	1568.2
15°	1629.8	1555.0	1526.4
16°	1592.4	1517.6	1491.3
17°	1561.6	1478.1	1458.3
18°	1530.8	1442.9	1412.1
19°	1493.5	1409.9	1374.7
20°	1460.5	1368.1	1339.5
21°	1425.3	1337.3	1306.5
22.5°	1376.9	1277.9	1249.3
23°	1361.5	1260.3	1229.5
24°	1326.3	1225.1	1198.7
25°	1291.1	1198.7	1170.1
26°	1260.3	1159.1	1132.7
27°	1229.5	1128.3	1099.7
28°	1196.5	1095.3	1073.4
29°	1163.5	1060.2	1038.2
30°	1128.3	1036.0	998.6
32.5°	1040.4	956.8	926.0
35°	954.6	882.0	855.6
37.5°	871.0	811.6	787.4
40°	798.4	745.6	721.4
42.5°	723.6	675.2	651.0
45°	646.6	607.1	582.9
47.5°	576.3	543.3	516.9
50°	512.5	479.5	466.3
52.5°	450.9	428.9	435.5
55°	393.7	393.7	391.5
57.5°	338.7	354.1	356.3
60°	296.9	316.7	321.1





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**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
67.5°	204.6	215.5	219.9
70°	176.0	184.8	187.0
72.5°	149.6	156.2	160.6
75°	121.0	129.8	129.8
77.5°	99.0	103.4	105.6
80°	74.8	77.0	79.2
82.5°	52.8	55.0	57.2
85°	30.8	33.0	35.2
87.5°	13.2	13.2	13.2
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





62.5°	444.3	448.7	442.1	431.1	420.1	400.3	378.3	347.5	325.5	307.9	277.1
65°	389.3	391.5	387.1	376.1	365.1	345.3	323.3	296.9	279.3	261.7	235.3

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62.5°	266.1	281.5	283.7
65°	233.1	246.3	248.5

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Scaled Data Report



(END OF REPORT)