

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: P838686

Luminaire Tested: HCSQ650D010-HM64560935-61SQLWW

Issue Date: 5/21/2024

**Test Information**

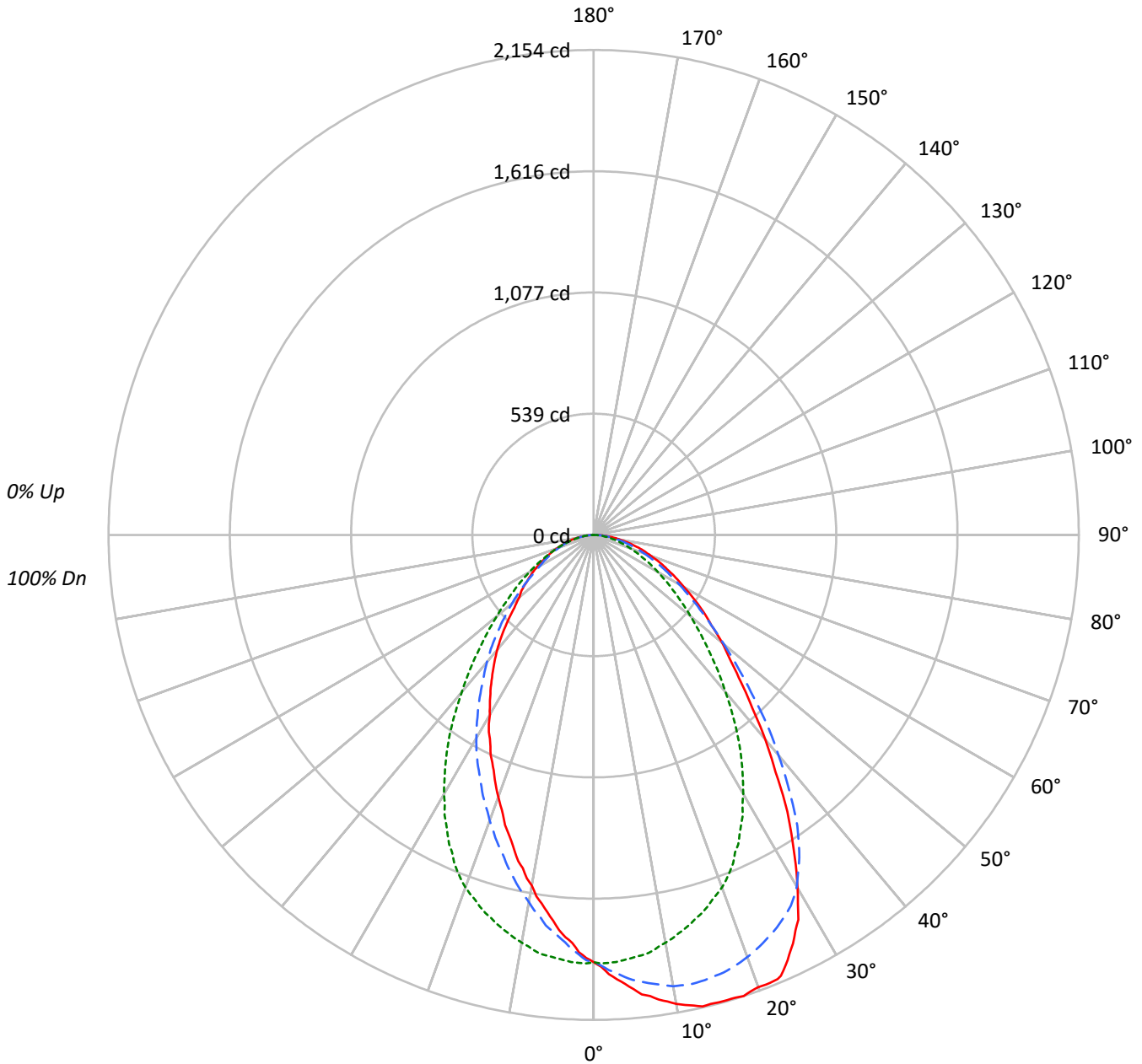
Test Method: LM-79-2019  
Report Number: P838686  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-166-5)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ650D010-HM64560935-61SQLWW  
Description: 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: 3588.2 lumens  
Efficiency: N/A  
Efficacy: 72.2 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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### 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°	183821	183821	183821	183821	183821
5°	196971	192920	183531	174050	171288
10°	208042	200247	180863	162871	155483
15°	215569	203955	176656	150981	141403
20°	220330	205675	171742	139072	127546
25°	219766	205646	162217	127467	115527
30°	202717	201687	148631	116583	103170
35°	177312	186566	133105	104273	93463
40°	149781	161473	115106	93266	84274
45°	126645	135269	98532	81832	73762
50°	112370	113440	84504	71347	64911
55°	100544	97107	73082	61428	61073
60°	89745	84621	63763	53146	57467
65°	82430	75209	55427	49353	52630
70°	75966	67327	48916	46027	48916
75°	71491	60075	42595	41809	44878
80°	65719	53836	37378	38550	40781
85°	65469	48518	31567	31567	36124

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 40°  
 Vertical Angle: 45°  
 Luminance: 136386 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	179.0	5.0
10°-20°	498.8	13.9
20°-30°	711.5	19.8
30°-40°	733.3	20.4
40°-50°	590.3	16.5
50°-60°	417.4	11.6
60°-70°	270.5	7.5
70°-80°	145.3	4.1
80°-90°	42.0	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°	1389.3	38.7
0°-40°	2122.6	59.2
0°-60°	3130.3	87.2
0°-90°	3588.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3588.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1898	1898	1898	1898	1898	
5°	2026	1984	1887	1790	1761	196
15°	2149	2034	1761	1505	1410	608
25°	2056	1924	1518	1192	1081	936
35°	1499	1578	1126	882	790	931
45°	924	987	719	597	538	722
55°	595	575	433	364	362	532
65°	360	328	242	215	230	359
75°	191	160	114	112	120	203
85°	59	44	28	28	32	65
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°	1897.5	1897.5	1897.5	1897.5	1897.5	1897.5	1897.5	1897.5	1897.5	1897.5	1897.5
1°	1917.8	1925.9	1919.9	1919.9	1913.8	1911.7	1915.8	1909.7	1907.7	1903.6	1895.5
2°	1952.4	1946.3	1944.2	1946.3	1934.1	1934.1	1928.0	1915.8	1909.7	1901.6	1879.2
3°	1976.7	1972.7	1968.6	1966.6	1954.4	1944.2	1936.1	1921.9	1909.7	1899.5	1867.0
4°	1999.1	1999.1	1995.0	1986.9	1974.7	1962.5	1946.3	1930.0	1911.7	1893.4	1850.8
5°	2025.5	2027.5	2009.2	2007.2	1993.0	1974.7	1956.4	1934.1	1911.7	1887.3	1840.6
6°	2051.9	2041.7	2037.7	2023.5	2003.1	1986.9	1964.5	1940.2	1909.7	1881.3	1818.3
7°	2064.1	2062.1	2051.9	2037.7	2019.4	1993.0	1970.6	1938.1	1905.6	1877.2	1802.0
8°	2084.4	2084.4	2072.2	2053.9	2027.5	2003.1	1974.7	1936.1	1903.6	1867.0	1779.7
9°	2098.6	2098.6	2082.4	2066.1	2041.7	2009.2	1976.7	1934.1	1893.4	1850.8	1759.4
10°	2114.9	2110.8	2098.6	2074.3	2053.9	2017.4	1976.7	1932.0	1887.3	1838.6	1739.0
11°	2127.1	2121.0	2106.8	2088.5	2056.0	2019.4	1976.7	1932.0	1879.2	1826.4	1718.7
12°	2137.2	2133.2	2114.9	2092.5	2060.0	2023.5	1974.7	1923.9	1865.0	1810.1	1692.3
13°	2149.4	2137.2	2118.9	2098.6	2062.1	2019.4	1966.6	1911.7	1854.8	1795.9	1670.0
14°	2147.4	2145.4	2129.1	2100.7	2060.0	2015.3	1964.5	1899.5	1840.6	1779.7	1643.6
15°	2149.4	2147.4	2129.1	2102.7	2058.0	2009.2	1958.5	1891.4	1826.4	1761.4	1617.1
16°	2149.4	2149.4	2125.0	2098.6	2056.0	2003.1	1946.3	1883.3	1812.2	1747.2	1594.8
17°	2149.4	2149.4	2129.1	2092.5	2049.9	1999.1	1934.1	1867.0	1795.9	1726.8	1562.3
18°	2153.5	2147.4	2121.0	2090.5	2041.7	1988.9	1925.9	1854.8	1781.7	1704.5	1539.9
19°	2143.3	2139.3	2116.9	2078.3	2035.7	1976.7	1913.8	1840.6	1767.5	1686.2	1513.5
20°	2137.2	2143.3	2112.9	2072.2	2023.5	1966.6	1901.6	1826.4	1747.2	1665.9	1487.1
21°	2139.3	2137.2	2104.7	2062.1	2015.3	1952.4	1887.3	1810.1	1724.8	1641.5	1462.7
22.5°	2135.2	2129.1	2094.6	2047.8	1991.0	1934.1	1863.0	1783.7	1692.3	1598.9	1416.0
23°	2127.1	2121.0	2094.6	2043.8	1982.8	1925.9	1850.8	1767.5	1680.1	1584.6	1403.8
24°	2094.6	2092.5	2080.3	2029.6	1972.7	1909.7	1836.6	1741.1	1643.6	1544.0	1373.4
25°	2056.0	2060.0	2053.9	2021.4	1956.4	1891.4	1814.2	1708.6	1609.0	1517.6	1336.8
26°	2019.4	2019.4	2015.3	2003.1	1940.2	1871.1	1781.7	1670.0	1574.5	1479.0	1298.2
27°	1972.7	1980.8	1972.7	1966.6	1923.9	1848.7	1747.2	1643.6	1535.9	1442.4	1265.7
28°	1936.1	1936.1	1932.0	1921.9	1907.7	1822.3	1710.6	1605.0	1499.3	1409.9	1229.1
29°	1871.1	1883.3	1885.3	1887.3	1885.3	1787.8	1676.1	1562.3	1460.7	1363.2	1194.6
30°	1812.2	1824.4	1832.5	1846.7	1848.7	1757.3	1635.4	1527.8	1424.1	1328.7	1164.1
32.5°	1651.7	1674.0	1696.4	1720.8	1732.9	1665.9	1535.9	1418.0	1312.4	1227.1	1070.6
35°	1499.3	1505.4	1529.8	1586.7	1598.9	1556.2	1418.0	1306.3	1206.8	1125.5	983.3
37.5°	1326.6	1338.8	1373.4	1438.4	1442.4	1407.9	1312.4	1182.4	1088.9	1017.8	893.9
40°	1184.4	1190.5	1214.9	1269.7	1288.0	1265.7	1182.4	1064.6	979.2	910.2	808.6
42.5°	1042.2	1050.3	1080.8	1123.5	1149.9	1123.5	1050.3	948.8	865.5	814.7	727.3
45°	924.4	934.5	963.0	987.4	995.5	979.2	914.2	830.9	772.0	719.2	652.1
47.5°	822.8	833.0	853.3	863.4	873.6	857.3	806.5	737.5	678.6	635.9	574.9
50°	745.6	743.6	757.8	761.8	761.8	743.6	700.9	644.0	595.3	560.7	509.9
52.5°	658.2	662.3	672.5	668.4	666.4	650.1	613.5	564.8	524.1	493.7	446.9
55°	595.3	589.2	595.3	591.2	583.1	566.8	534.3	493.7	459.1	432.7	390.1
57.5°	526.2	526.2	528.2	520.1	509.9	491.6	463.2	430.7	400.2	377.9	343.3
60°	463.2	467.3	465.2	457.1	446.9	426.6	404.3	371.8	345.4	329.1	296.6



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**CANDELA DISTRIBUTION (continued):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	<i>314.9</i>	314.9	308.8	302.7	288.5	270.2	253.9	233.6	219.4	205.2	184.9
70°	<i>268.2</i>	272.2	264.1	253.9	243.8	231.6	213.3	197.1	182.8	172.7	156.4
72.5°	<i>231.6</i>	229.6	223.5	213.3	205.2	191.0	174.7	162.5	150.3	142.2	130.0
75°	<i>191.0</i>	191.0	184.9	176.7	166.6	154.4	142.2	132.1	121.9	113.8	107.7
77.5°	<i>152.4</i>	154.4	148.3	142.2	134.1	121.9	111.7	103.6	95.5	89.4	85.3
80°	<i>117.8</i>	119.9	113.8	109.7	99.5	93.5	85.3	77.2	71.1	67.0	65.0
82.5°	<i>89.4</i>	87.4	83.3	81.3	73.1	67.0	58.9	54.9	50.8	46.7	46.7
85°	<i>58.9</i>	56.9	54.9	52.8	46.7	40.6	38.6	34.5	30.5	28.4	28.4
87.5°	<i>30.5</i>	30.5	28.4	26.4	24.4	20.3	18.3	14.2	12.2	12.2	12.2
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°	1897.5	1897.5	1897.5
1°	1889.4	1881.3	1879.2
2°	1865.0	1852.8	1854.8
3°	1842.7	1828.4	1814.2
4°	1814.2	1791.9	1791.9
5°	1789.8	1767.5	1761.4
6°	1767.5	1730.9	1722.8
7°	1747.2	1702.5	1688.2
8°	1712.6	1667.9	1653.7
9°	1688.2	1639.5	1625.3
10°	1655.7	1607.0	1580.6
11°	1629.3	1574.5	1554.2
12°	1600.9	1533.8	1513.5
13°	1568.4	1499.3	1487.1
14°	1537.9	1470.9	1448.5
15°	1505.4	1436.3	1409.9
16°	1470.9	1401.8	1377.4
17°	1442.4	1365.2	1346.9
18°	1414.0	1332.7	1304.3
19°	1379.4	1302.2	1269.7
20°	1349.0	1263.6	1237.2
21°	1316.5	1235.2	1206.8
22.5°	1271.8	1180.4	1153.9
23°	1257.6	1164.1	1135.7
24°	1225.0	1131.6	1107.2
25°	1192.5	1107.2	1080.8
26°	1164.1	1070.6	1046.3
27°	1135.7	1042.2	1015.8
28°	1105.2	1011.7	991.4
29°	1074.7	979.2	958.9
30°	1042.2	956.9	922.3
32.5°	960.9	883.7	855.3
35°	881.7	814.7	790.3
37.5°	804.5	749.7	727.3
40°	737.5	688.7	666.4
42.5°	668.4	623.7	601.4
45°	597.3	560.7	538.4
47.5°	532.3	501.8	477.4
50°	473.4	442.9	430.7
52.5°	416.5	396.2	402.3
55°	363.7	363.7	361.6
57.5°	312.9	327.1	329.1
60°	274.3	292.5	296.6





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**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
67.5°	188.9	199.1	203.2
70°	162.5	170.7	172.7
72.5°	138.1	144.2	148.3
75°	111.7	119.9	119.9
77.5°	91.4	95.5	97.5
80°	69.1	71.1	73.1
82.5°	48.8	50.8	52.8
85°	28.4	30.5	32.5
87.5°	12.2	12.2	12.2
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



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Scaled Data Report





62.5°	410.4	414.4	408.3	398.2	388.0	369.7	349.4	321.0	300.7	284.4	256.0
65°	359.6	361.6	357.6	347.4	337.2	319.0	298.6	274.3	258.0	241.8	217.4

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62.5°	245.8	260.0	262.1
65°	215.3	227.5	229.6

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Scaled Data Report



(END OF REPORT)