

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: P838666

Luminaire Tested: HCSQ650D010-HM64560835-61SQLWW

Issue Date: 5/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P838666
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-HM64560835-61SQLWW
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: -

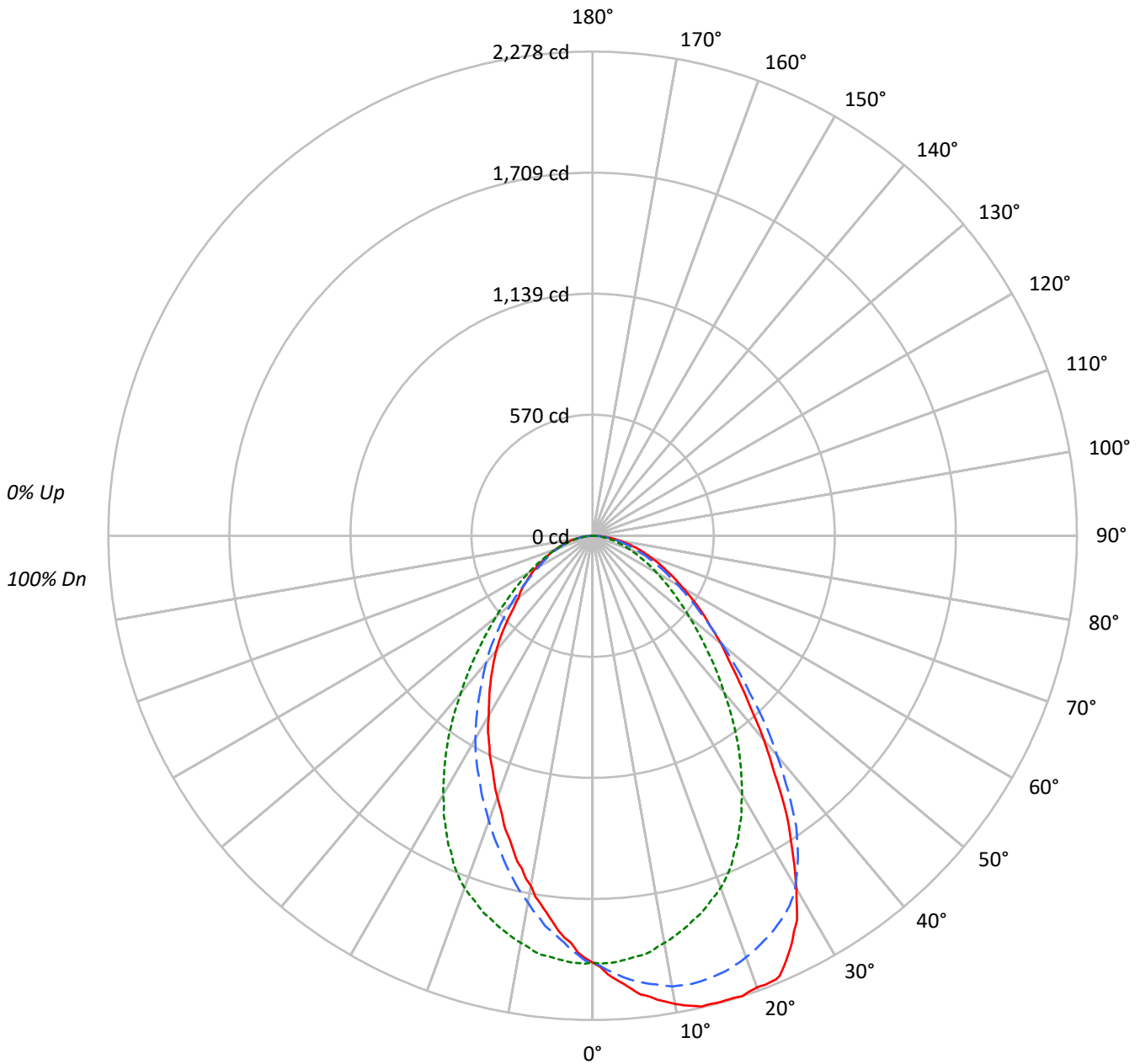
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3795.7 lumens
Efficiency: N/A
Efficacy: 76.4 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_{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					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			
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	92	91	89	87					87			
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75					75			
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66					66			
4	87	76	69	63	85	75	68	62	73	66	62	71	65	61	68	64	60	58					58			
5	81	69	61	55	79	68	61	55	66	60	55	64	59	54	63	58	53	51					51			
6	75	63	55	49	74	62	55	49	61	54	49	59	53	48	58	52	48	46					46			
7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	42					42			
8	66	53	46	40	64	53	45	40	51	45	40	50	44	40	49	44	39	38					38			
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34					34			
10	58	46	39	34	57	45	38	34	44	38	34	44	38	33	43	37	33	32					32			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	194458	194458	194458	194458	194458
5°	208368	204079	194151	184125	181197
10°	220073	211835	191329	172295	164474
15°	228046	215760	186876	159716	149587
20°	233082	217567	181680	147113	134928
25°	232476	217543	171602	134842	122208
30°	214440	213360	157222	123328	109144
35°	187565	197357	140804	110304	98868
40°	158444	170812	121758	98653	89143
45°	133961	143099	104232	86558	78023
50°	118866	120004	89402	75461	68664
55°	106355	102723	77321	64975	64603
60°	94938	89523	67464	56207	60799
65°	87198	79565	58613	52218	55679
70°	80357	71222	51749	48690	51749
75°	75608	63537	45065	44242	47461
80°	69512	56960	39554	40781	43180
85°	69248	51352	33457	33457	38236

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 40°
 Vertical Angle: 45°
 Luminance: 144277 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.3	5.0
10°-20°	527.7	13.9
20°-30°	752.7	19.8
30°-40°	775.7	20.4
40°-50°	624.5	16.5
50°-60°	441.6	11.6
60°-70°	286.2	7.5
70°-80°	153.7	4.1
80°-90°	44.4	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°	1469.7	38.7
0°-40°	2245.4	59.2
0°-60°	3311.4	87.2
0°-90°	3795.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3795.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2007	2007	2007	2007	2007	
5°	2143	2099	1996	1893	1863	207
15°	2274	2151	1863	1592	1492	643
25°	2175	2035	1605	1262	1143	990
35°	1586	1669	1191	933	836	985
45°	978	1044	761	632	570	764
55°	630	608	458	385	382	563
65°	380	347	256	228	243	379
75°	202	170	120	118	127	214
85°	62	46	30	30	34	68
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°	2007.3	2007.3	2007.3	2007.3	2007.3	2007.3	2007.3	2007.3	2007.3	2007.3	2007.3
1°	2028.8	2037.4	2030.9	2030.9	2024.5	2022.3	2026.6	2020.2	2018.0	2013.7	2005.1
2°	2065.3	2058.9	2056.7	2058.9	2046.0	2046.0	2039.5	2026.6	2020.2	2011.6	1987.9
3°	2091.1	2086.8	2082.5	2080.3	2067.5	2056.7	2048.1	2033.1	2020.2	2009.4	1975.0
4°	2114.7	2114.7	2110.4	2101.8	2088.9	2076.0	2058.9	2041.7	2022.3	2003.0	1957.8
5°	2142.7	2144.8	2125.5	2123.3	2108.3	2088.9	2069.6	2046.0	2022.3	1996.5	1947.1
6°	2170.6	2159.9	2155.6	2140.5	2119.0	2101.8	2078.2	2052.4	2020.2	1990.1	1923.5
7°	2183.5	2181.4	2170.6	2155.6	2136.2	2108.3	2084.6	2050.3	2015.9	1985.8	1906.3
8°	2205.0	2205.0	2192.1	2172.8	2144.8	2119.0	2088.9	2048.1	2013.7	1975.0	1882.6
9°	2220.0	2220.0	2202.8	2185.7	2159.9	2125.5	2091.1	2046.0	2003.0	1957.8	1861.1
10°	2237.2	2232.9	2220.0	2194.2	2172.8	2134.1	2091.1	2043.8	1996.5	1945.0	1839.6
11°	2250.1	2243.7	2228.6	2209.3	2174.9	2136.2	2091.1	2043.8	1987.9	1932.1	1818.2
12°	2260.9	2256.6	2237.2	2213.6	2179.2	2140.5	2088.9	2035.2	1972.9	1914.9	1790.2
13°	2273.8	2260.9	2241.5	2220.0	2181.4	2136.2	2080.3	2022.3	1962.1	1899.8	1766.6
14°	2271.6	2269.5	2252.3	2222.2	2179.2	2131.9	2078.2	2009.4	1947.1	1882.6	1738.6
15°	2273.8	2271.6	2252.3	2224.3	2177.1	2125.5	2071.7	2000.8	1932.1	1863.3	1710.7
16°	2273.8	2273.8	2248.0	2220.0	2174.9	2119.0	2058.9	1992.2	1917.0	1848.2	1687.1
17°	2273.8	2273.8	2252.3	2213.6	2168.5	2114.7	2046.0	1975.0	1899.8	1826.8	1652.7
18°	2278.1	2271.6	2243.7	2211.4	2159.9	2104.0	2037.4	1962.1	1884.8	1803.1	1629.0
19°	2267.3	2263.0	2239.4	2198.5	2153.4	2091.1	2024.5	1947.1	1869.7	1783.8	1601.1
20°	2260.9	2267.3	2235.1	2192.1	2140.5	2080.3	2011.6	1932.1	1848.2	1762.3	1573.2
21°	2263.0	2260.9	2226.5	2181.4	2131.9	2065.3	1996.5	1914.9	1824.6	1736.5	1547.4
22.5°	2258.7	2252.3	2215.7	2166.3	2106.1	2046.0	1970.7	1886.9	1790.2	1691.4	1497.9
23°	2250.1	2243.7	2215.7	2162.0	2097.5	2037.4	1957.8	1869.7	1777.3	1676.3	1485.0
24°	2215.7	2213.6	2200.7	2147.0	2086.8	2020.2	1942.8	1841.8	1738.6	1633.3	1452.8
25°	2174.9	2179.2	2172.8	2138.4	2069.6	2000.8	1919.2	1807.4	1702.1	1605.4	1414.1
26°	2136.2	2136.2	2131.9	2119.0	2052.4	1979.3	1884.8	1766.6	1665.6	1564.6	1373.3
27°	2086.8	2095.4	2086.8	2080.3	2035.2	1955.7	1848.2	1738.6	1624.7	1525.9	1338.9
28°	2048.1	2048.1	2043.8	2033.1	2018.0	1927.8	1809.6	1697.8	1586.0	1491.5	1300.2
29°	1979.3	1992.2	1994.4	1996.5	1994.4	1891.2	1773.0	1652.7	1545.2	1442.1	1263.7
30°	1917.0	1929.9	1938.5	1953.5	1955.7	1859.0	1730.0	1616.1	1506.5	1405.5	1231.4
32.5°	1747.2	1770.9	1794.5	1820.3	1833.2	1762.3	1624.7	1500.1	1388.3	1298.1	1132.6
35°	1586.0	1592.5	1618.3	1678.5	1691.4	1646.2	1500.1	1381.9	1276.6	1190.6	1040.2
37.5°	1403.4	1416.3	1452.8	1521.6	1525.9	1489.3	1388.3	1250.8	1151.9	1076.7	945.6
40°	1252.9	1259.4	1285.2	1343.2	1362.5	1338.9	1250.8	1126.1	1035.9	962.8	855.3
42.5°	1102.5	1111.1	1143.3	1188.5	1216.4	1188.5	1111.1	1003.6	915.5	861.8	769.4
45°	977.8	988.6	1018.7	1044.5	1053.1	1035.9	967.1	879.0	816.7	760.8	689.9
47.5°	870.4	881.1	902.6	913.4	924.1	906.9	853.2	780.1	717.8	672.7	608.2
50°	788.7	786.6	801.6	805.9	805.9	786.6	741.4	681.3	629.7	593.2	539.4
52.5°	696.3	700.6	711.4	707.1	704.9	687.7	649.0	597.5	554.5	522.2	472.8
55°	629.7	623.2	629.7	625.4	616.8	599.6	565.2	522.2	485.7	457.8	412.6
57.5°	556.6	556.6	558.8	550.2	539.4	520.1	490.0	455.6	423.4	399.7	363.2
60°	490.0	494.3	492.1	483.6	472.8	451.3	427.7	393.3	365.4	348.2	313.8



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	333.1	333.1	326.7	320.2	305.2	285.8	268.6	247.1	232.1	217.1	195.6
70°	283.7	288.0	279.4	268.6	257.9	245.0	225.7	208.5	193.4	182.7	165.5
72.5°	245.0	242.9	236.4	225.7	217.1	202.0	184.8	171.9	159.0	150.4	137.5
75°	202.0	202.0	195.6	187.0	176.2	163.3	150.4	139.7	128.9	120.4	113.9
77.5°	161.2	163.3	156.9	150.4	141.8	128.9	118.2	109.6	101.0	94.6	90.3
80°	124.6	126.8	120.4	116.1	105.3	98.9	90.3	81.7	75.2	70.9	68.8
82.5°	94.6	92.4	88.1	86.0	77.4	70.9	62.3	58.0	53.7	49.4	49.4
85°	62.3	60.2	58.0	55.9	49.4	43.0	40.8	36.5	32.2	30.1	30.1
87.5°	32.2	32.2	30.1	27.9	25.8	21.5	19.3	15.0	12.9	12.9	12.9
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°	2007.3	2007.3	2007.3
1°	1998.7	1990.1	1987.9
2°	1972.9	1960.0	1962.1
3°	1949.2	1934.2	1919.2
4°	1919.2	1895.5	1895.5
5°	1893.4	1869.7	1863.3
6°	1869.7	1831.0	1822.5
7°	1848.2	1801.0	1785.9
8°	1811.7	1764.4	1749.4
9°	1785.9	1734.3	1719.3
10°	1751.5	1700.0	1672.0
11°	1723.6	1665.6	1644.1
12°	1693.5	1622.6	1601.1
13°	1659.1	1586.0	1573.2
14°	1626.9	1556.0	1532.3
15°	1592.5	1519.4	1491.5
16°	1556.0	1482.9	1457.1
17°	1525.9	1444.2	1424.9
18°	1495.8	1409.8	1379.7
19°	1459.3	1377.6	1343.2
20°	1427.0	1336.8	1308.8
21°	1392.6	1306.7	1276.6
22.5°	1345.3	1248.6	1220.7
23°	1330.3	1231.4	1201.4
24°	1295.9	1197.1	1171.3
25°	1261.5	1171.3	1143.3
26°	1231.4	1132.6	1106.8
27°	1201.4	1102.5	1074.6
28°	1169.1	1070.3	1048.8
29°	1136.9	1035.9	1014.4
30°	1102.5	1012.2	975.7
32.5°	1016.5	934.9	904.8
35°	932.7	861.8	836.0
37.5°	851.1	793.0	769.4
40°	780.1	728.6	704.9
42.5°	707.1	659.8	636.1
45°	631.8	593.2	569.5
47.5°	563.1	530.8	505.0
50°	500.7	468.5	455.6
52.5°	440.6	419.1	425.5
55°	384.7	384.7	382.5
57.5°	331.0	346.0	348.2
60°	290.1	309.5	313.8



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	199.9	210.6	214.9
70°	171.9	180.5	182.7
72.5°	146.1	152.6	156.9
75°	118.2	126.8	126.8
77.5°	96.7	101.0	103.2
80°	73.1	75.2	77.4
82.5°	51.6	53.7	55.9
85°	30.1	32.2	34.4
87.5°	12.9	12.9	12.9
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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Scaled Data Report





— 0°-180° - - 45°-225° - - - 90°-270°

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62.5°	434.1	438.4	432.0	421.2	410.5	391.1	369.6	339.6	318.1	300.9	270.8
65°	380.4	382.5	378.2	367.5	356.8	337.4	315.9	290.1	272.9	255.7	230.0

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62.5°	260.0	275.1	277.2
65°	227.8	240.7	242.9

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Scaled Data Report



(END OF REPORT)