

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: P838656

Luminaire Tested: HCSQ650D010-HM64560827-61SQLWW

Issue Date: 5/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P838656
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-HM64560827-61SQLWW
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: -

Summary

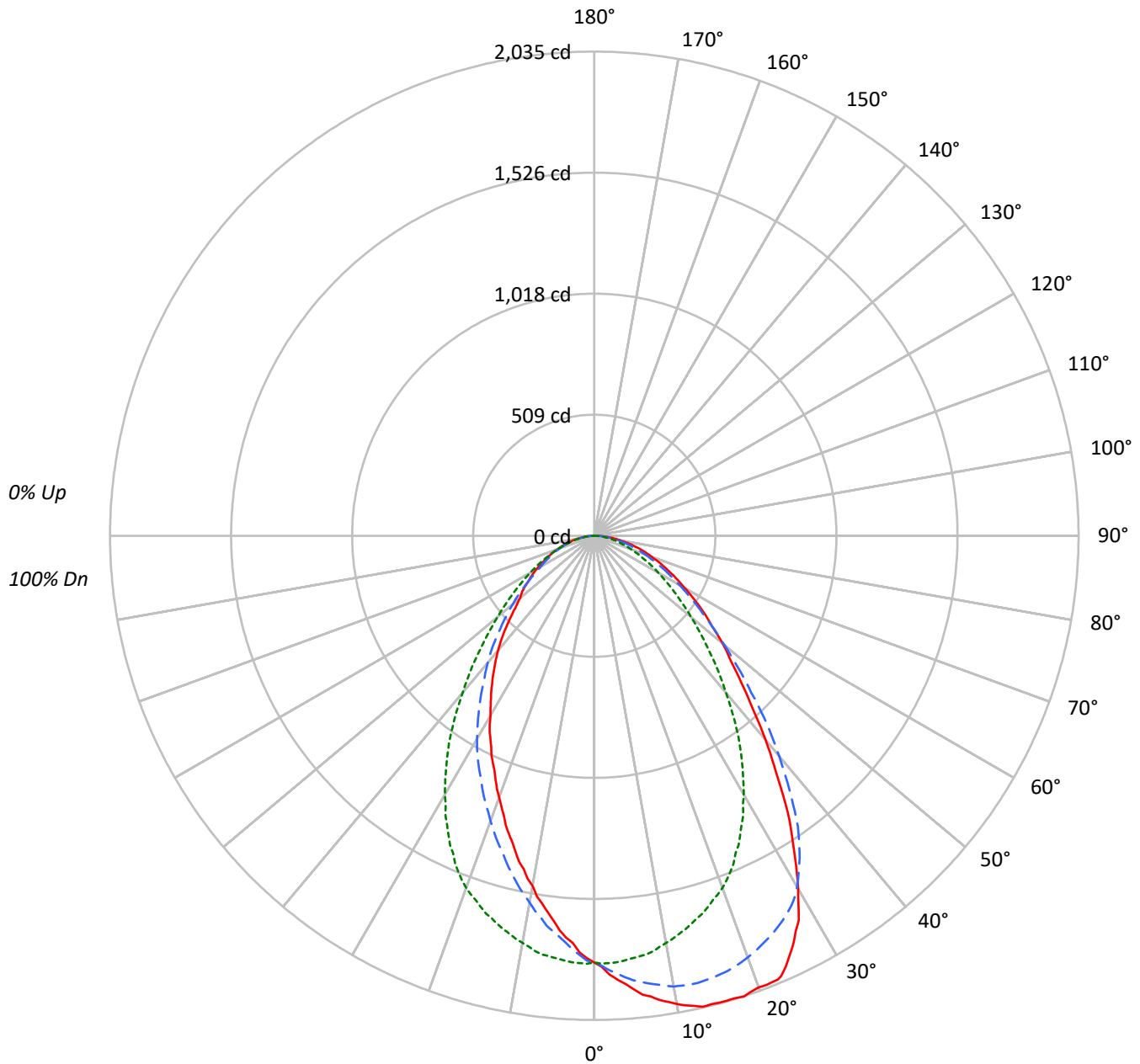
Lumens per Lamp: N/A
Luminaire Lumens: 3391.4 lumens
Efficiency: N/A
Efficacy: 68.2 lumens/watt
Spacing Criteria (0/90/45): 1.11 / 1.08 / 1.17
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 49.7
Input Voltage (V): NR
Input Current (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					20
RC	80				70					50					30					10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
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°	173736	173736	173736	173736	173736
5°	186167	182340	173466	164510	161894
10°	196632	189264	170937	153939	146955
15°	203745	192768	166967	142697	133650
20°	208247	194392	162319	131443	120557
25°	207709	194369	153323	120476	109188
30°	191597	190624	140476	110184	97521
35°	167591	176330	125808	98560	88331
40°	141574	152621	108783	88144	79646
45°	119699	127851	93121	77338	69707
50°	106206	107224	79877	67428	61355
55°	95022	91779	69079	58050	57729
60°	84824	79980	60276	50220	54308
65°	77914	71083	52378	46648	49742
70°	71803	63631	46226	43506	46226
75°	67561	56781	40237	39526	42408
80°	62148	50879	35370	36430	38550
85°	61912	45906	29900	29900	34124

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 40°

Vertical Angle: 45°

Luminance: 128906 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	169.2	5.0
10°-20°	471.5	13.9
20°-30°	672.5	19.8
30°-40°	693.1	20.4
40°-50°	557.9	16.5
50°-60°	394.5	11.6
60°-70°	255.7	7.5
70°-80°	137.3	4.0
80°-90°	39.7	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°	1313.1	38.7
0°-40°	2006.2	59.2
0°-60°	2958.7	87.2
0°-90°	3391.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3391.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1793	1793	1793	1793	1793	
5°	1914	1875	1784	1692	1665	185
15°	2032	1922	1665	1423	1333	575
25°	1943	1818	1434	1127	1022	885
35°	1417	1491	1064	833	747	880
45°	874	933	680	564	509	683
55°	563	543	409	344	342	503
65°	340	310	228	204	217	339
75°	180	152	108	106	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°	1793.4	1793.4	1793.4	1793.4	1793.4	1793.4	1793.4	1793.4	1793.4	1793.4	1793.4
1°	1812.6	1820.3	1814.6	1814.6	1808.8	1806.9	1810.7	1805.0	1803.0	1799.2	1791.5
2°	1845.3	1839.5	1837.6	1839.5	1828.0	1828.0	1822.2	1810.7	1805.0	1797.3	1776.2
3°	1868.3	1864.5	1860.6	1858.7	1847.2	1837.6	1829.9	1816.5	1805.0	1795.4	1764.6
4°	1889.4	1889.4	1885.6	1877.9	1866.4	1854.9	1839.5	1824.2	1806.9	1789.6	1749.3
5°	1914.4	1916.3	1899.0	1897.1	1883.7	1866.4	1849.1	1828.0	1806.9	1783.8	1739.7
6°	1939.4	1929.8	1925.9	1912.5	1893.3	1877.9	1856.8	1833.8	1805.0	1778.1	1718.5
7°	1950.9	1949.0	1939.4	1925.9	1908.6	1883.7	1862.6	1831.8	1801.1	1774.2	1703.2
8°	1970.1	1970.1	1958.6	1941.3	1916.3	1893.3	1866.4	1829.9	1799.2	1764.6	1682.1
9°	1983.5	1983.5	1968.2	1952.8	1929.8	1899.0	1868.3	1828.0	1789.6	1749.3	1662.9
10°	1998.9	1995.0	1983.5	1960.5	1941.3	1906.7	1868.3	1826.1	1783.8	1737.7	1643.7
11°	2010.4	2004.7	1991.2	1973.9	1943.2	1908.6	1868.3	1826.1	1776.2	1726.2	1624.5
12°	2020.0	2016.2	1998.9	1977.8	1947.0	1912.5	1866.4	1818.4	1762.7	1710.9	1599.5
13°	2031.5	2020.0	2002.7	1983.5	1949.0	1908.6	1858.7	1806.9	1753.1	1697.4	1578.4
14°	2029.6	2027.7	2012.3	1985.4	1947.0	1904.8	1856.8	1795.4	1739.7	1682.1	1553.4
15°	2031.5	2029.6	2012.3	1987.4	1945.1	1899.0	1851.0	1787.7	1726.2	1664.8	1528.5
16°	2031.5	2031.5	2008.5	1983.5	1943.2	1893.3	1839.5	1780.0	1712.8	1651.3	1507.3
17°	2031.5	2031.5	2012.3	1977.8	1937.4	1889.4	1828.0	1764.6	1697.4	1632.1	1476.6
18°	2035.4	2029.6	2004.7	1975.8	1929.8	1879.8	1820.3	1753.1	1684.0	1611.0	1455.5
19°	2025.8	2021.9	2000.8	1964.3	1924.0	1868.3	1808.8	1739.7	1670.5	1593.7	1430.5
20°	2020.0	2025.8	1997.0	1958.6	1912.5	1858.7	1797.3	1726.2	1651.3	1574.5	1405.6
21°	2021.9	2020.0	1989.3	1949.0	1904.8	1845.3	1783.8	1710.9	1630.2	1551.5	1382.5
22.5°	2018.1	2012.3	1979.7	1935.5	1881.8	1828.0	1760.8	1685.9	1599.5	1511.2	1338.4
23°	2010.4	2004.7	1979.7	1931.7	1874.1	1820.3	1749.3	1670.5	1588.0	1497.7	1326.8
24°	1979.7	1977.8	1966.2	1918.2	1864.5	1805.0	1735.8	1645.6	1553.4	1459.3	1298.0
25°	1943.2	1947.0	1941.3	1910.6	1849.1	1787.7	1714.7	1614.9	1520.8	1434.4	1263.5
26°	1908.6	1908.6	1904.8	1893.3	1833.8	1768.5	1684.0	1578.4	1488.1	1397.9	1227.0
27°	1864.5	1872.2	1864.5	1858.7	1818.4	1747.3	1651.3	1553.4	1451.6	1363.3	1196.3
28°	1829.9	1829.9	1826.1	1816.5	1803.0	1722.4	1616.8	1516.9	1417.1	1332.6	1161.7
29°	1768.5	1780.0	1781.9	1783.8	1781.9	1689.7	1584.1	1476.6	1380.6	1288.4	1129.1
30°	1712.8	1724.3	1732.0	1745.4	1747.3	1660.9	1545.7	1444.0	1346.0	1255.8	1100.3
32.5°	1561.1	1582.2	1603.3	1626.4	1637.9	1574.5	1451.6	1340.3	1240.4	1159.8	1011.9
35°	1417.1	1422.8	1445.9	1499.6	1511.2	1470.8	1340.3	1234.7	1140.6	1063.8	929.4
37.5°	1253.9	1265.4	1298.0	1359.5	1363.3	1330.7	1240.4	1117.5	1029.2	962.0	844.9
40°	1119.5	1125.2	1148.3	1200.1	1217.4	1196.3	1117.5	1006.2	925.5	860.2	764.2
42.5°	985.0	992.7	1021.5	1061.9	1086.8	1061.9	992.7	896.7	818.0	770.0	687.4
45°	873.7	883.3	910.2	933.2	940.9	925.5	864.1	785.3	729.7	679.7	616.4
47.5°	777.7	787.3	806.5	816.1	825.7	810.3	762.3	697.0	641.3	601.0	543.4
50°	704.7	702.8	716.2	720.1	720.1	702.8	662.5	608.7	562.6	530.0	482.0
52.5°	622.1	626.0	635.6	631.7	629.8	614.5	579.9	533.8	495.4	466.6	422.4
55°	562.6	556.8	562.6	558.8	551.1	535.7	505.0	466.6	434.0	409.0	368.7
57.5°	497.3	497.3	499.2	491.6	482.0	464.7	437.8	407.1	378.3	357.2	324.5
60°	437.8	441.6	439.7	432.0	422.4	403.2	382.1	351.4	326.4	311.1	280.3



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	297.6	297.6	291.9	286.1	272.7	255.4	240.0	220.8	207.4	193.9	174.7
70°	253.5	257.3	249.6	240.0	230.4	218.9	201.6	186.3	172.8	163.2	147.9
72.5°	218.9	217.0	211.2	201.6	193.9	180.5	165.1	153.6	142.1	134.4	122.9
75°	180.5	180.5	174.7	167.1	157.5	145.9	134.4	124.8	115.2	107.5	101.8
77.5°	144.0	145.9	140.2	134.4	126.7	115.2	105.6	97.9	90.2	84.5	80.6
80°	111.4	113.3	107.5	103.7	94.1	88.3	80.6	73.0	67.2	63.4	61.4
82.5°	84.5	82.6	78.7	76.8	69.1	63.4	55.7	51.8	48.0	44.2	44.2
85°	55.7	53.8	51.8	49.9	44.2	38.4	36.5	32.6	28.8	26.9	26.9
87.5°	28.8	28.8	26.9	25.0	23.0	19.2	17.3	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°	1793.4	1793.4	1793.4
1°	1785.8	1778.1	1776.2
2°	1762.7	1751.2	1753.1
3°	1741.6	1728.1	1714.7
4°	1714.7	1693.6	1693.6
5°	1691.7	1670.5	1664.8
6°	1670.5	1636.0	1628.3
7°	1651.3	1609.1	1595.7
8°	1618.7	1576.5	1563.0
9°	1595.7	1549.6	1536.1
10°	1564.9	1518.8	1493.9
11°	1540.0	1488.1	1468.9
12°	1513.1	1449.7	1430.5
13°	1482.4	1417.1	1405.6
14°	1453.6	1390.2	1369.1
15°	1422.8	1357.6	1332.6
16°	1390.2	1324.9	1301.9
17°	1363.3	1290.3	1273.1
18°	1336.4	1259.6	1232.7
19°	1303.8	1230.8	1200.1
20°	1275.0	1194.3	1169.4
21°	1244.3	1167.5	1140.6
22.5°	1202.0	1115.6	1090.7
23°	1188.6	1100.3	1073.4
24°	1157.9	1069.5	1046.5
25°	1127.1	1046.5	1021.5
26°	1100.3	1011.9	988.9
27°	1073.4	985.0	960.1
28°	1044.6	956.2	937.0
29°	1015.8	925.5	906.3
30°	985.0	904.4	871.8
32.5°	908.2	835.3	808.4
35°	833.4	770.0	746.9
37.5°	760.4	708.5	687.4
40°	697.0	650.9	629.8
42.5°	631.7	589.5	568.4
45°	564.5	530.0	508.8
47.5°	503.1	474.3	451.2
50°	447.4	418.6	407.1
52.5°	393.6	374.4	380.2
55°	343.7	343.7	341.8
57.5°	295.7	309.1	311.1
60°	259.2	276.5	280.3



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	178.6	188.2	192.0
70°	153.6	161.3	163.2
72.5°	130.6	136.3	140.2
75°	105.6	113.3	113.3
77.5°	86.4	90.2	92.2
80°	65.3	67.2	69.1
82.5°	46.1	48.0	49.9
85°	26.9	28.8	30.7
87.5°	11.5	11.5	11.5
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







62.5°	387.9	391.7	386.0	376.4	366.8	349.5	330.3	303.4	284.2	268.8	241.9
65°	339.9	341.8	337.9	328.3	318.7	301.5	282.3	259.2	243.9	228.5	205.5





62.5°	232.3	245.8	247.7
65°	203.5	215.1	217.0



(END OF REPORT)