

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: P838641

Luminaire Tested: HCSQ645D010-HM64560930-61SQLWW

Issue Date: 5/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P838641
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-HM64560930-61SQLWW
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

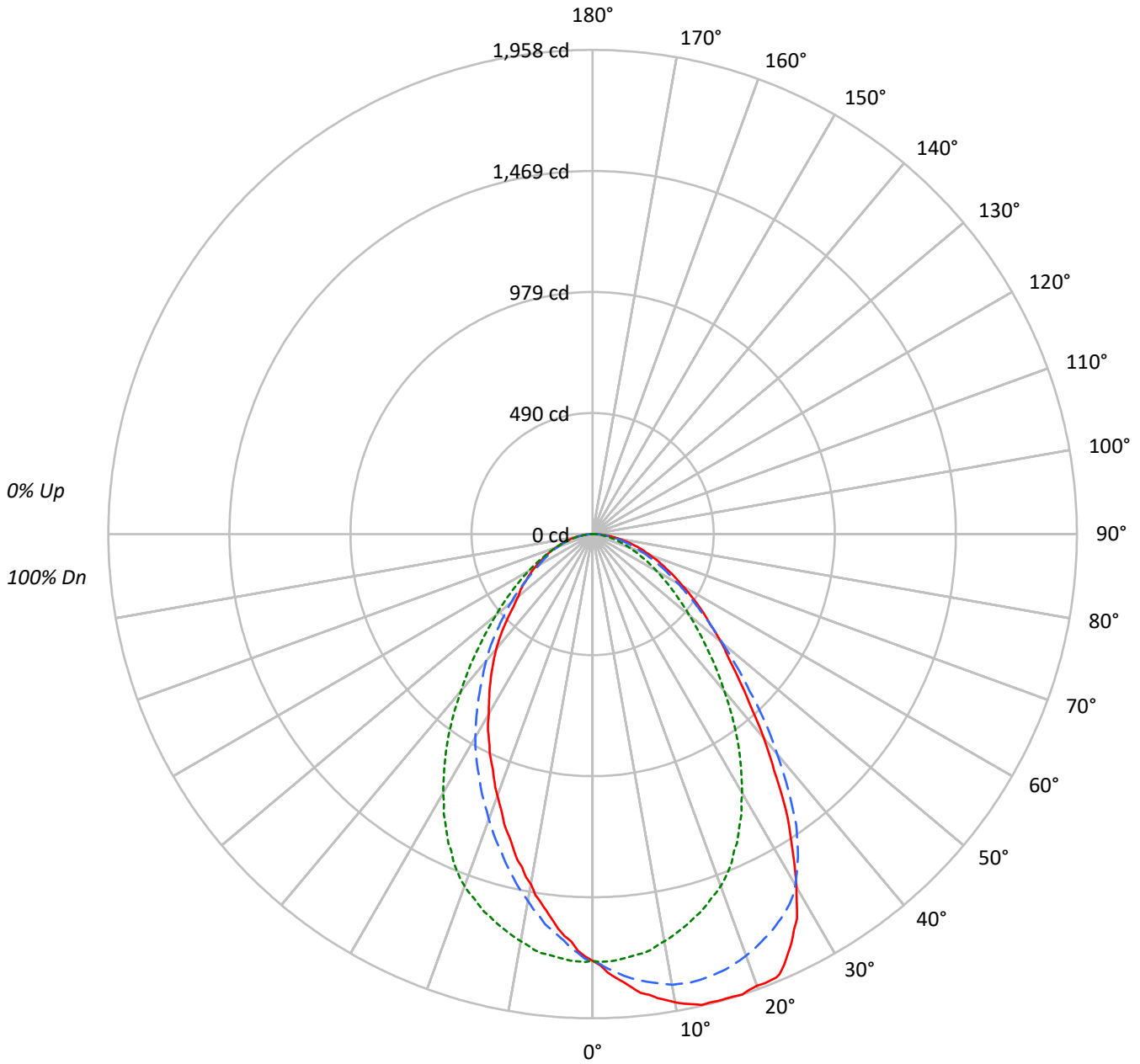
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3262.7 lumens
Efficiency: N/A
Efficacy: 71.1 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 (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

TEST NUMBER: P838641
CATALOG NUMBER: HCSQ645D010-HM64560930-61SQLWW

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	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°	167149	167149	167149	167149	167149
5°	179107	175421	166893	158267	155748
10°	189175	182083	164455	148106	141377
15°	196022	185456	160629	137291	128575
20°	200350	187015	156165	126453	115979
25°	199831	186994	147498	115912	105052
30°	184326	183398	135141	106012	93819
35°	161228	169637	121030	94811	84984
40°	136199	146829	104660	84805	76623
45°	115151	123001	89586	74406	67063
50°	102182	103147	76848	64866	59019
55°	91424	88299	66461	55854	55533
60°	81608	76948	57990	48321	52255
65°	74957	68390	50384	44883	47840
70°	69055	61223	44469	41864	44469
75°	64978	54629	38702	38029	40798
80°	59749	48954	34031	35035	37099
85°	59578	44127	28788	28788	32901

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 40°
 Vertical Angle: 45°
 Luminance: 124015 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.7	5.0
10°-20°	453.6	13.9
20°-30°	647.0	19.8
30°-40°	666.8	20.4
40°-50°	536.8	16.5
50°-60°	379.6	11.6
60°-70°	246.0	7.5
70°-80°	132.1	4.1
80°-90°	38.2	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°	1263.3	38.7
0°-40°	1930.1	59.2
0°-60°	2846.4	87.2
0°-90°	3262.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3262.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1725	1725	1725	1725	1725	
5°	1842	1804	1716	1628	1602	178
15°	1954	1849	1602	1369	1282	553
25°	1870	1749	1380	1084	983	851
35°	1363	1434	1023	802	719	846
45°	840	898	654	543	490	657
55°	541	523	394	331	329	484
65°	327	298	220	196	209	326
75°	174	146	103	102	109	184
85°	54	40	26	26	30	59
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°	1725.4	1725.4	1725.4	1725.4	1725.4	1725.4	1725.4	1725.4	1725.4	1725.4	1725.4
1°	1743.9	1751.3	1745.7	1745.7	1740.2	1738.3	1742.0	1736.5	1734.6	1730.9	1723.5
2°	1775.3	1769.7	1767.9	1769.7	1758.6	1758.6	1753.1	1742.0	1736.5	1729.1	1708.8
3°	1797.4	1793.7	1790.0	1788.2	1777.1	1767.9	1760.5	1747.6	1736.5	1727.2	1697.7
4°	1817.8	1817.8	1814.1	1806.7	1795.6	1784.5	1769.7	1754.9	1738.3	1721.7	1682.9
5°	1841.8	1843.6	1827.0	1825.1	1812.2	1795.6	1779.0	1758.6	1738.3	1716.2	1673.7
6°	1865.8	1856.5	1852.9	1839.9	1821.4	1806.7	1786.4	1764.2	1736.5	1710.6	1653.3
7°	1876.9	1875.0	1865.8	1852.9	1836.2	1812.2	1791.9	1762.3	1732.8	1706.9	1638.6
8°	1895.3	1895.3	1884.3	1867.6	1843.6	1821.4	1795.6	1760.5	1730.9	1697.7	1618.2
9°	1908.3	1908.3	1893.5	1878.7	1856.5	1827.0	1797.4	1758.6	1721.7	1682.9	1599.8
10°	1923.1	1919.4	1908.3	1886.1	1867.6	1834.4	1797.4	1756.8	1716.2	1671.8	1581.3
11°	1934.1	1928.6	1915.7	1899.0	1869.5	1836.2	1797.4	1756.8	1708.8	1660.7	1562.8
12°	1943.4	1939.7	1923.1	1902.7	1873.2	1839.9	1795.6	1749.4	1695.8	1646.0	1538.8
13°	1954.5	1943.4	1926.7	1908.3	1875.0	1836.2	1788.2	1738.3	1686.6	1633.0	1518.5
14°	1952.6	1950.8	1936.0	1910.1	1873.2	1832.5	1786.4	1727.2	1673.7	1618.2	1494.5
15°	1954.5	1952.6	1936.0	1912.0	1871.3	1827.0	1780.8	1719.8	1660.7	1601.6	1470.5
16°	1954.5	1954.5	1932.3	1908.3	1869.5	1821.4	1769.7	1712.5	1647.8	1588.7	1450.1
17°	1954.5	1954.5	1936.0	1902.7	1863.9	1817.8	1758.6	1697.7	1633.0	1570.2	1420.6
18°	1958.2	1952.6	1928.6	1900.9	1856.5	1808.5	1751.3	1686.6	1620.1	1549.9	1400.3
19°	1948.9	1945.2	1924.9	1889.8	1851.0	1797.4	1740.2	1673.7	1607.2	1533.3	1376.2
20°	1943.4	1948.9	1921.2	1884.3	1839.9	1788.2	1729.1	1660.7	1588.7	1514.8	1352.2
21°	1945.2	1943.4	1913.8	1875.0	1832.5	1775.3	1716.2	1646.0	1568.4	1492.6	1330.1
22.5°	1941.5	1936.0	1904.6	1862.1	1810.4	1758.6	1694.0	1621.9	1538.8	1453.8	1287.6
23°	1934.1	1928.6	1904.6	1858.4	1803.0	1751.3	1682.9	1607.2	1527.7	1440.9	1276.5
24°	1904.6	1902.7	1891.6	1845.5	1793.7	1736.5	1670.0	1583.1	1494.5	1404.0	1248.8
25°	1869.5	1873.2	1867.6	1838.1	1779.0	1719.8	1649.6	1553.6	1463.1	1379.9	1215.5
26°	1836.2	1836.2	1832.5	1821.4	1764.2	1701.4	1620.1	1518.5	1431.7	1344.8	1180.4
27°	1793.7	1801.1	1793.7	1788.2	1749.4	1681.1	1588.7	1494.5	1396.6	1311.6	1150.9
28°	1760.5	1760.5	1756.8	1747.6	1734.6	1657.0	1555.4	1459.4	1363.3	1282.0	1117.6
29°	1701.4	1712.5	1714.3	1716.2	1714.3	1625.6	1524.0	1420.6	1328.2	1239.5	1086.2
30°	1647.8	1658.9	1666.3	1679.2	1681.1	1597.9	1487.1	1389.2	1295.0	1208.1	1058.5
32.5°	1501.9	1522.2	1542.5	1564.7	1575.8	1514.8	1396.6	1289.4	1193.4	1115.8	973.5
35°	1363.3	1368.9	1391.0	1442.8	1453.8	1415.0	1289.4	1187.8	1097.3	1023.4	894.1
37.5°	1206.3	1217.4	1248.8	1307.9	1311.6	1280.2	1193.4	1075.1	990.2	925.5	812.8
40°	1077.0	1082.5	1104.7	1154.6	1171.2	1150.9	1075.1	968.0	890.4	827.6	735.2
42.5°	947.7	955.1	982.8	1021.6	1045.6	1021.6	955.1	862.7	787.0	740.8	661.3
45°	840.5	849.8	875.6	897.8	905.2	890.4	831.3	755.6	702.0	653.9	593.0
47.5°	748.2	757.4	775.9	785.1	794.3	779.6	733.4	670.6	617.0	578.2	522.8
50°	678.0	676.1	689.0	692.7	692.7	676.1	637.3	585.6	541.3	509.9	463.7
52.5°	598.5	602.2	611.5	607.8	605.9	591.1	557.9	513.6	476.6	448.9	406.4
55°	541.3	535.7	541.3	537.6	530.2	515.4	485.8	448.9	417.5	393.5	354.7
57.5°	478.5	478.5	480.3	472.9	463.7	447.0	421.2	391.6	363.9	343.6	312.2
60°	421.2	424.9	423.0	415.6	406.4	387.9	367.6	338.1	314.0	299.3	269.7



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	<i>286.3</i>	286.3	280.8	275.2	262.3	245.7	230.9	212.4	199.5	186.6	168.1
70°	<i>243.8</i>	247.5	240.2	230.9	221.7	210.6	194.0	179.2	166.3	157.0	142.2
72.5°	<i>210.6</i>	208.7	203.2	194.0	186.6	173.6	158.9	147.8	136.7	129.3	118.2
75°	<i>173.6</i>	173.6	168.1	160.7	151.5	140.4	129.3	120.1	110.8	103.4	97.9
77.5°	<i>138.5</i>	140.4	134.9	129.3	121.9	110.8	101.6	94.2	86.8	81.3	77.6
80°	<i>107.1</i>	109.0	103.4	99.8	90.5	85.0	77.6	70.2	64.7	61.0	59.1
82.5°	<i>81.3</i>	79.4	75.7	73.9	66.5	61.0	53.6	49.9	46.2	42.5	42.5
85°	<i>53.6</i>	51.7	49.9	48.0	42.5	36.9	35.1	31.4	27.7	25.9	25.9
87.5°	<i>27.7</i>	27.7	25.9	24.0	22.2	18.5	16.6	12.9	11.1	11.1	11.1
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°	1725.4	1725.4	1725.4
1°	1718.0	1710.6	1708.8
2°	1695.8	1684.7	1686.6
3°	1675.5	1662.6	1649.6
4°	1649.6	1629.3	1629.3
5°	1627.5	1607.2	1601.6
6°	1607.2	1573.9	1566.5
7°	1588.7	1548.0	1535.1
8°	1557.3	1516.6	1503.7
9°	1535.1	1490.8	1477.8
10°	1505.6	1461.2	1437.2
11°	1481.5	1431.7	1413.2
12°	1455.7	1394.7	1376.2
13°	1426.1	1363.3	1352.2
14°	1398.4	1337.5	1317.1
15°	1368.9	1306.0	1282.0
16°	1337.5	1274.6	1252.5
17°	1311.6	1241.4	1224.8
18°	1285.7	1211.8	1186.0
19°	1254.3	1184.1	1154.6
20°	1226.6	1149.0	1125.0
21°	1197.1	1123.2	1097.3
22.5°	1156.4	1073.3	1049.3
23°	1143.5	1058.5	1032.6
24°	1113.9	1029.0	1006.8
25°	1084.4	1006.8	982.8
26°	1058.5	973.5	951.4
27°	1032.6	947.7	923.7
28°	1004.9	920.0	901.5
29°	977.2	890.4	871.9
30°	947.7	870.1	838.7
32.5°	873.8	803.6	777.7
35°	801.7	740.8	718.6
37.5°	731.5	681.7	661.3
40°	670.6	626.2	605.9
42.5°	607.8	567.1	546.8
45°	543.1	509.9	489.5
47.5°	484.0	456.3	434.1
50°	430.4	402.7	391.6
52.5°	378.7	360.2	365.8
55°	330.7	330.7	328.8
57.5°	284.5	297.4	299.3
60°	249.4	266.0	269.7



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	171.8	181.0	184.7
70°	147.8	155.2	157.0
72.5°	125.6	131.2	134.9
75°	101.6	109.0	109.0
77.5°	83.1	86.8	88.7
80°	62.8	64.7	66.5
82.5°	44.3	46.2	48.0
85°	25.9	27.7	29.6
87.5°	11.1	11.1	11.1
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°	373.2	376.9	371.3	362.1	352.8	336.2	317.7	291.9	273.4	258.6	232.8
65°	327.0	328.8	325.1	315.9	306.7	290.0	271.6	249.4	234.6	219.8	197.7

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62.5°	223.5	236.5	238.3
65°	195.8	206.9	208.7

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Scaled Data Report



(END OF REPORT)