

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: P838616

Luminaire Tested: HCSQ645D010-HM64560827-61SQLWW

Issue Date: 5/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P838616
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-HM64560827-61SQLWW
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: -

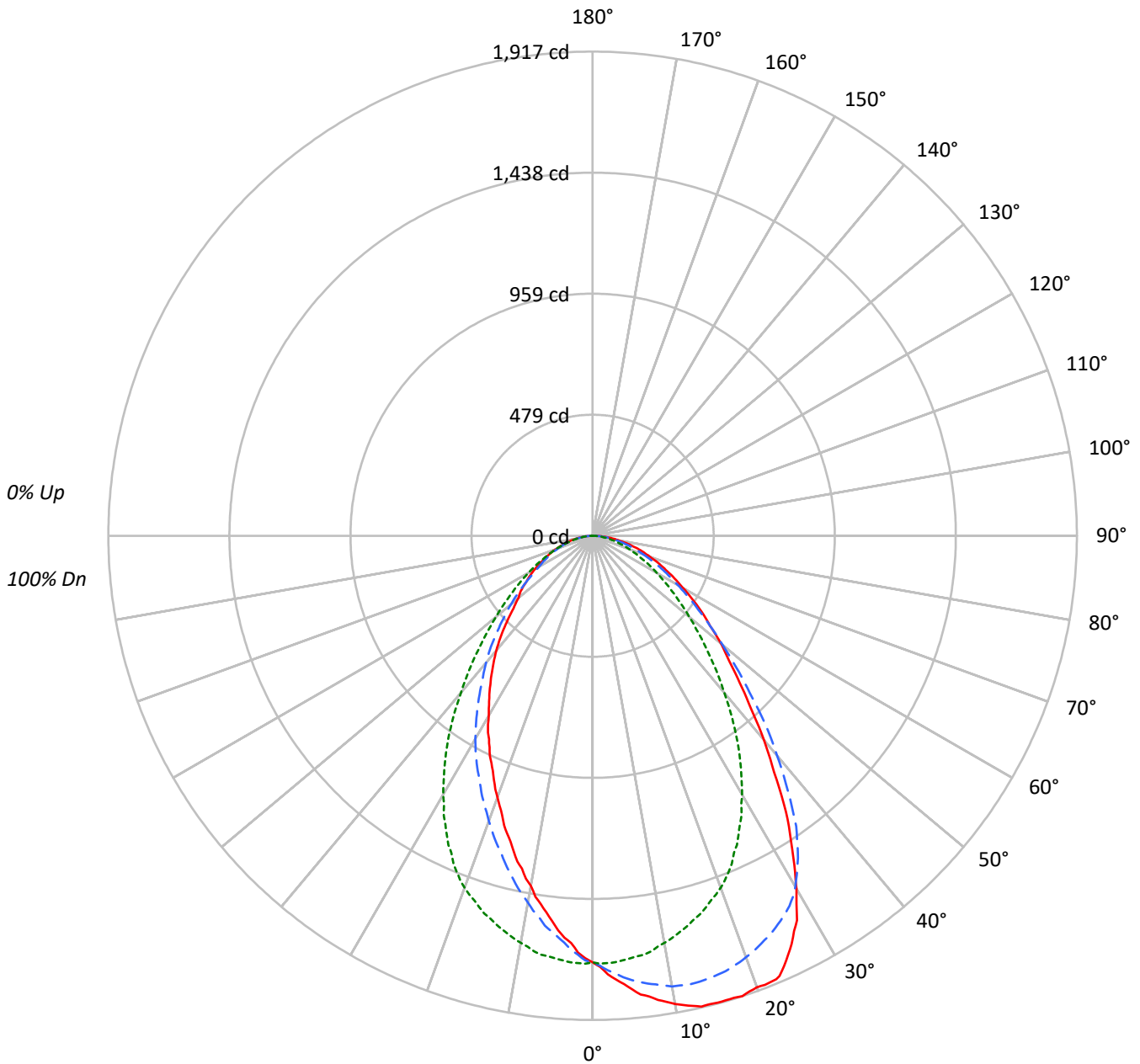
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3194.1 lumens
Efficiency: N/A
Efficacy: 69.6 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

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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	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°	163632	163632	163632	163632	163632
5°	175343	171736	163382	154941	152481
10°	185191	178256	161002	144987	138406
15°	191900	181560	157259	134402	125878
20°	196134	183087	152886	123794	113546
25°	195630	183066	144398	113475	102839
30°	180456	179539	132311	103786	91850
35°	157846	166077	118488	92825	83198
40°	133341	143743	102459	83022	75017
45°	112739	120418	87709	72844	65665
50°	100027	100984	75220	63510	57783
55°	89499	86442	65059	54672	54368
60°	79883	75340	56769	47295	51150
65°	73375	66946	49330	43943	46854
70°	67611	59935	43535	40986	43535
75°	63631	53468	37916	37243	39938
80°	58522	47922	33306	34310	36318
85°	58244	43238	28121	28121	32123

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 40°
 Vertical Angle: 45°
 Luminance: 121412 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.3	5.0
10°-20°	444.1	13.9
20°-30°	633.4	19.8
30°-40°	652.8	20.4
40°-50°	525.5	16.5
50°-60°	371.6	11.6
60°-70°	240.8	7.5
70°-80°	129.4	4.1
80°-90°	37.4	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°	1236.8	38.7
0°-40°	1889.5	59.2
0°-60°	2786.6	87.2
0°-90°	3194.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3194.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1689	1689	1689	1689	1689	
5°	1803	1766	1680	1593	1568	175
15°	1913	1810	1568	1340	1255	541
25°	1830	1713	1351	1062	962	833
35°	1335	1404	1002	785	704	829
45°	823	879	640	532	479	643
55°	530	512	385	324	322	474
65°	320	292	215	192	204	319
75°	170	143	101	100	107	180
85°	52	39	25	25	29	58
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°	1689.1	1689.1	1689.1	1689.1	1689.1	1689.1	1689.1	1689.1	1689.1	1689.1	1689.1
1°	1707.2	1714.5	1709.0	1709.0	1703.6	1701.8	1705.4	1700.0	1698.2	1694.6	1687.3
2°	1738.0	1732.5	1730.7	1732.5	1721.7	1721.7	1716.3	1705.4	1700.0	1692.8	1672.9
3°	1759.7	1756.1	1752.4	1750.6	1739.8	1730.7	1723.5	1710.8	1700.0	1690.9	1662.0
4°	1779.6	1779.6	1775.9	1768.7	1757.9	1747.0	1732.5	1718.1	1701.8	1685.5	1647.5
5°	1803.1	1804.9	1788.6	1786.8	1774.1	1757.9	1741.6	1721.7	1701.8	1680.1	1638.5
6°	1826.6	1817.5	1813.9	1801.3	1783.2	1768.7	1748.8	1727.1	1700.0	1674.7	1618.6
7°	1837.4	1835.6	1826.6	1813.9	1797.6	1774.1	1754.2	1725.3	1696.4	1671.1	1604.1
8°	1855.5	1855.5	1844.7	1828.4	1804.9	1783.2	1757.9	1723.5	1694.6	1662.0	1584.2
9°	1868.2	1868.2	1853.7	1839.2	1817.5	1788.6	1759.7	1721.7	1685.5	1647.5	1566.2
10°	1882.6	1879.0	1868.2	1846.5	1828.4	1795.8	1759.7	1719.9	1680.1	1636.7	1548.1
11°	1893.5	1888.1	1875.4	1859.1	1830.2	1797.6	1759.7	1719.9	1672.9	1625.8	1530.0
12°	1902.5	1898.9	1882.6	1862.8	1833.8	1801.3	1757.9	1712.6	1660.2	1611.4	1506.5
13°	1913.4	1902.5	1886.3	1868.2	1835.6	1797.6	1750.6	1701.8	1651.2	1598.7	1486.6
14°	1911.6	1909.8	1895.3	1870.0	1833.8	1794.0	1748.8	1690.9	1638.5	1584.2	1463.1
15°	1913.4	1911.6	1895.3	1871.8	1832.0	1788.6	1743.4	1683.7	1625.8	1568.0	1439.6
16°	1913.4	1913.4	1891.7	1868.2	1830.2	1783.2	1732.5	1676.5	1613.2	1555.3	1419.7
17°	1913.4	1913.4	1895.3	1862.8	1824.8	1779.6	1721.7	1662.0	1598.7	1537.2	1390.7
18°	1917.0	1911.6	1888.1	1860.9	1817.5	1770.5	1714.5	1651.2	1586.1	1517.3	1370.8
19°	1908.0	1904.3	1884.5	1850.1	1812.1	1759.7	1703.6	1638.5	1573.4	1501.1	1347.3
20°	1902.5	1908.0	1880.8	1844.7	1801.3	1750.6	1692.8	1625.8	1555.3	1483.0	1323.8
21°	1904.3	1902.5	1873.6	1835.6	1794.0	1738.0	1680.1	1611.4	1535.4	1461.3	1302.1
22.5°	1900.7	1895.3	1864.6	1823.0	1772.3	1721.7	1658.4	1587.9	1506.5	1423.3	1260.5
23°	1893.5	1888.1	1864.6	1819.3	1765.1	1714.5	1647.5	1573.4	1495.6	1410.6	1249.7
24°	1864.6	1862.8	1851.9	1806.7	1756.1	1700.0	1634.9	1549.9	1463.1	1374.5	1222.5
25°	1830.2	1833.8	1828.4	1799.5	1741.6	1683.7	1615.0	1520.9	1432.3	1350.9	1190.0
26°	1797.6	1797.6	1794.0	1783.2	1727.1	1665.6	1586.1	1486.6	1401.6	1316.6	1155.6
27°	1756.1	1763.3	1756.1	1750.6	1712.6	1645.7	1555.3	1463.1	1367.2	1284.0	1126.7
28°	1723.5	1723.5	1719.9	1710.8	1698.2	1622.2	1522.8	1428.7	1334.7	1255.1	1094.1
29°	1665.6	1676.5	1678.3	1680.1	1678.3	1591.5	1492.0	1390.7	1300.3	1213.5	1063.4
30°	1613.2	1624.0	1631.3	1643.9	1645.7	1564.3	1455.8	1360.0	1267.8	1182.8	1036.3
32.5°	1470.3	1490.2	1510.1	1531.8	1542.6	1483.0	1367.2	1262.3	1168.3	1092.3	953.1
35°	1334.7	1340.1	1361.8	1412.4	1423.3	1385.3	1262.3	1162.9	1074.2	1001.9	875.3
37.5°	1180.9	1191.8	1222.5	1280.4	1284.0	1253.3	1168.3	1052.5	969.4	906.1	795.7
40°	1054.4	1059.8	1081.5	1130.3	1146.6	1126.7	1052.5	947.7	871.7	810.2	719.8
42.5°	927.8	935.0	962.1	1000.1	1023.6	1000.1	935.0	844.6	770.4	725.2	647.4
45°	822.9	831.9	857.2	878.9	886.2	871.7	813.8	739.7	687.2	640.2	580.5
47.5°	732.4	741.5	759.6	768.6	777.7	763.2	718.0	656.5	604.0	566.1	511.8
50°	663.7	661.9	674.6	678.2	678.2	661.9	623.9	573.3	529.9	499.1	453.9
52.5°	586.0	589.6	598.6	595.0	593.2	578.7	546.2	502.8	466.6	439.5	397.9
55°	529.9	524.5	529.9	526.3	519.0	504.6	475.6	439.5	408.7	385.2	347.2
57.5°	468.4	468.4	470.2	463.0	453.9	437.7	412.3	383.4	356.3	336.4	305.6
60°	412.3	416.0	414.1	406.9	397.9	379.8	359.9	331.0	307.4	293.0	264.0



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	280.3	280.3	274.9	269.5	256.8	240.5	226.1	208.0	195.3	182.7	164.6
70°	238.7	242.3	235.1	226.1	217.0	206.2	189.9	175.4	162.8	153.7	139.3
72.5°	206.2	204.4	198.9	189.9	182.7	170.0	155.5	144.7	133.8	126.6	115.7
75°	170.0	170.0	164.6	157.3	148.3	137.4	126.6	117.6	108.5	101.3	95.9
77.5°	135.6	137.4	132.0	126.6	119.4	108.5	99.5	92.2	85.0	79.6	76.0
80°	104.9	106.7	101.3	97.7	88.6	83.2	76.0	68.7	63.3	59.7	57.9
82.5°	79.6	77.8	74.1	72.3	65.1	59.7	52.4	48.8	45.2	41.6	41.6
85°	52.4	50.6	48.8	47.0	41.6	36.2	34.4	30.7	27.1	25.3	25.3
87.5°	27.1	27.1	25.3	23.5	21.7	18.1	16.3	12.7	10.9	10.9	10.9
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°	1689.1	1689.1	1689.1
1°	1681.9	1674.7	1672.9
2°	1660.2	1649.3	1651.2
3°	1640.3	1627.6	1615.0
4°	1615.0	1595.1	1595.1
5°	1593.3	1573.4	1568.0
6°	1573.4	1540.8	1533.6
7°	1555.3	1515.5	1502.9
8°	1524.6	1484.8	1472.1
9°	1502.9	1459.5	1446.8
10°	1473.9	1430.5	1407.0
11°	1450.4	1401.6	1383.5
12°	1425.1	1365.4	1347.3
13°	1396.2	1334.7	1323.8
14°	1369.0	1309.4	1289.5
15°	1340.1	1278.6	1255.1
16°	1309.4	1247.9	1226.2
17°	1284.0	1215.3	1199.0
18°	1258.7	1186.4	1161.1
19°	1228.0	1159.2	1130.3
20°	1200.8	1124.9	1101.4
21°	1171.9	1099.6	1074.2
22.5°	1132.1	1050.7	1027.2
23°	1119.5	1036.3	1010.9
24°	1090.5	1007.3	985.6
25°	1061.6	985.6	962.1
26°	1036.3	953.1	931.4
27°	1010.9	927.8	904.2
28°	983.8	900.6	882.5
29°	956.7	871.7	853.6
30°	927.8	851.8	821.1
32.5°	855.4	786.7	761.4
35°	784.9	725.2	703.5
37.5°	716.2	667.3	647.4
40°	656.5	613.1	593.2
42.5°	595.0	555.2	535.3
45°	531.7	499.1	479.3
47.5°	473.8	446.7	425.0
50°	421.4	394.3	383.4
52.5°	370.7	352.7	358.1
55°	323.7	323.7	321.9
57.5°	278.5	291.2	293.0
60°	244.1	260.4	264.0



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	168.2	177.2	180.8
70°	144.7	151.9	153.7
72.5°	123.0	128.4	132.0
75°	99.5	106.7	106.7
77.5°	81.4	85.0	86.8
80°	61.5	63.3	65.1
82.5°	43.4	45.2	47.0
85°	25.3	27.1	28.9
87.5°	10.9	10.9	10.9
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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Scaled Data Report





62.5°	365.3	368.9	363.5	354.5	345.4	329.1	311.1	285.7	267.7	253.2	227.9
65°	320.1	321.9	318.3	309.3	300.2	283.9	265.8	244.1	229.7	215.2	193.5

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62.5°	218.8	231.5	233.3
65°	191.7	202.6	204.4

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Scaled Data Report



(END OF REPORT)