

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: P838636

Luminaire Tested: HCSQ645D010-HM64560927-61SQLWW

Issue Date: 5/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P838636
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-HM64560927-61SQLWW
Description: HALO COMMERCIAL 6" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

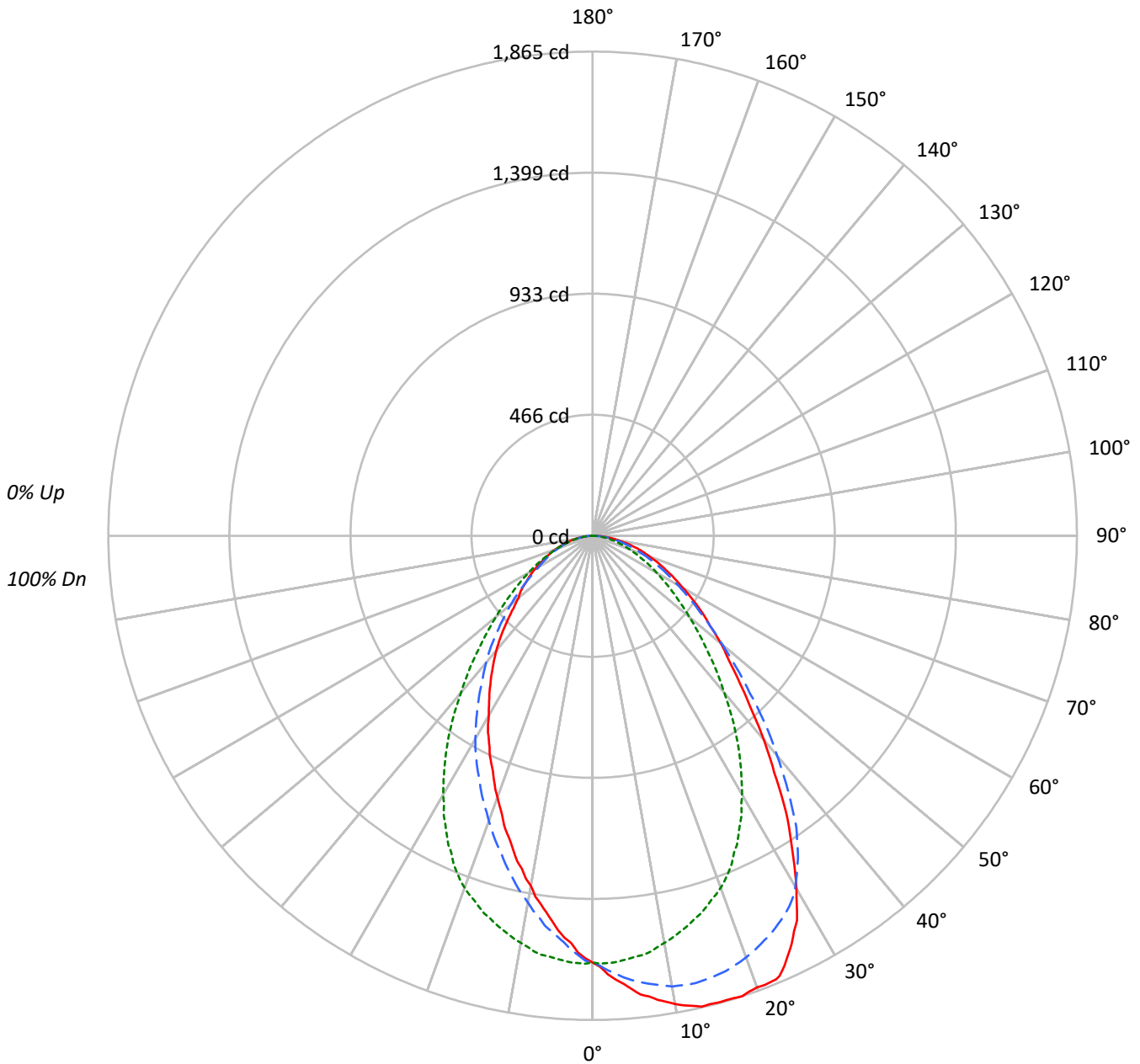
Lumens per Lamp: N/A
Luminaire Lumens: 3107.8 lumens
Efficiency: N/A
Efficacy: 67.7 lumens/watt
Spacing Criteria (0/90/45): 1.11 / 1.08 / 1.17
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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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CATALOG NUMBER: HCSQ645D010-HM64560927-61SQLWW

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			
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°	159215	159215	159215	159215	159215
5°	170598	167092	158967	150750	148358
10°	180194	173441	156654	141072	134668
15°	186715	176656	153007	130772	122478
20°	190835	178139	148752	120453	110474
25°	190339	178117	140496	110407	100060
30°	175579	174695	128731	100978	89367
35°	153576	161589	115283	90318	80951
40°	129737	139854	99690	80771	72994
45°	109684	117158	85339	70871	63884
50°	97329	98256	73201	61792	56215
55°	87083	84102	63303	53203	52899
60°	77733	73296	55238	46016	49775
65°	71404	65146	48000	42751	45570
70°	65798	58320	42373	39881	42373
75°	61909	52027	36868	36232	38852
80°	56960	46611	32413	33361	35314
85°	56688	42071	27343	27343	31345

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 40°
 Vertical Angle: 45°
 Luminance: 118124 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	155.0	5.0
10°-20°	432.1	13.9
20°-30°	616.3	19.8
30°-40°	635.1	20.4
40°-50°	511.3	16.5
50°-60°	361.5	11.6
60°-70°	234.3	7.5
70°-80°	125.9	4.1
80°-90°	36.4	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°	1203.3	38.7
0°-40°	1838.5	59.2
0°-60°	2711.3	87.2
0°-90°	3107.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3107.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1644	1644	1644	1644	1644	
5°	1754	1718	1635	1550	1526	170
15°	1862	1761	1526	1304	1221	526
25°	1781	1666	1314	1033	936	811
35°	1299	1366	975	764	684	806
45°	801	855	623	517	466	626
55°	516	498	375	315	313	461
65°	312	284	209	186	199	311
75°	165	139	98	97	104	175
85°	51	38	25	25	28	56
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°	1643.5	1643.5	1643.5	1643.5	1643.5	1643.5	1643.5	1643.5	1643.5	1643.5	1643.5
1°	1661.1	1668.1	1662.8	1662.8	1657.6	1655.8	1659.3	1654.0	1652.3	1648.8	1641.7
2°	1691.0	1685.7	1684.0	1685.7	1675.2	1675.2	1669.9	1659.3	1654.0	1647.0	1627.6
3°	1712.1	1708.6	1705.1	1703.3	1692.8	1684.0	1676.9	1664.6	1654.0	1645.2	1617.1
4°	1731.5	1731.5	1727.9	1720.9	1710.3	1699.8	1685.7	1671.6	1655.8	1640.0	1603.0
5°	1754.3	1756.1	1740.3	1738.5	1726.2	1710.3	1694.5	1675.2	1655.8	1634.7	1594.2
6°	1777.2	1768.4	1764.9	1752.6	1735.0	1720.9	1701.6	1680.4	1654.0	1629.4	1574.9
7°	1787.8	1786.0	1777.2	1764.9	1749.1	1726.2	1706.8	1678.7	1650.5	1625.9	1560.8
8°	1805.4	1805.4	1794.8	1779.0	1756.1	1735.0	1710.3	1676.9	1648.8	1617.1	1541.4
9°	1817.7	1817.7	1803.6	1789.5	1768.4	1740.3	1712.1	1675.2	1640.0	1603.0	1523.8
10°	1831.8	1828.2	1817.7	1796.6	1779.0	1747.3	1712.1	1673.4	1634.7	1592.5	1506.2
11°	1842.3	1837.0	1824.7	1808.9	1780.7	1749.1	1712.1	1673.4	1627.6	1581.9	1488.6
12°	1851.1	1847.6	1831.8	1812.4	1784.3	1752.6	1710.3	1666.4	1615.3	1567.8	1465.8
13°	1861.7	1851.1	1835.3	1817.7	1786.0	1749.1	1703.3	1655.8	1606.5	1555.5	1446.4
14°	1859.9	1858.2	1844.1	1819.4	1784.3	1745.5	1701.6	1645.2	1594.2	1541.4	1423.5
15°	1861.7	1859.9	1844.1	1821.2	1782.5	1740.3	1696.3	1638.2	1581.9	1525.6	1400.7
16°	1861.7	1861.7	1840.6	1817.7	1780.7	1735.0	1685.7	1631.2	1569.6	1513.3	1381.3
17°	1861.7	1861.7	1844.1	1812.4	1775.5	1731.5	1675.2	1617.1	1555.5	1495.7	1353.1
18°	1865.2	1859.9	1837.0	1810.6	1768.4	1722.7	1668.1	1606.5	1543.2	1476.3	1333.8
19°	1856.4	1852.9	1833.5	1800.1	1763.1	1712.1	1657.6	1594.2	1530.9	1460.5	1310.9
20°	1851.1	1856.4	1830.0	1794.8	1752.6	1703.3	1647.0	1581.9	1513.3	1442.9	1288.0
21°	1852.9	1851.1	1823.0	1786.0	1745.5	1691.0	1634.7	1567.8	1493.9	1421.8	1266.9
22.5°	1849.4	1844.1	1814.2	1773.7	1724.4	1675.2	1613.6	1544.9	1465.8	1384.8	1226.5
23°	1842.3	1837.0	1814.2	1770.2	1717.4	1668.1	1603.0	1530.9	1455.2	1372.5	1215.9
24°	1814.2	1812.4	1801.8	1757.9	1708.6	1654.0	1590.7	1508.0	1423.5	1337.3	1189.5
25°	1780.7	1784.3	1779.0	1750.8	1694.5	1638.2	1571.3	1479.8	1393.6	1314.4	1157.8
26°	1749.1	1749.1	1745.5	1735.0	1680.4	1620.6	1543.2	1446.4	1363.7	1281.0	1124.4
27°	1708.6	1715.6	1708.6	1703.3	1666.4	1601.3	1513.3	1423.5	1330.3	1249.3	1096.2
28°	1676.9	1676.9	1673.4	1664.6	1652.3	1578.4	1481.6	1390.1	1298.6	1221.2	1064.6
29°	1620.6	1631.2	1632.9	1634.7	1632.9	1548.5	1451.7	1353.1	1265.2	1180.7	1034.7
30°	1569.6	1580.1	1587.2	1599.5	1601.3	1522.1	1416.5	1323.2	1233.5	1150.8	1008.3
32.5°	1430.6	1449.9	1469.3	1490.4	1501.0	1442.9	1330.3	1228.2	1136.7	1062.8	927.3
35°	1298.6	1303.9	1325.0	1374.3	1384.8	1347.9	1228.2	1131.4	1045.2	974.8	851.7
37.5°	1149.0	1159.6	1189.5	1245.8	1249.3	1219.4	1136.7	1024.1	943.2	881.6	774.2
40°	1025.9	1031.1	1052.3	1099.8	1115.6	1096.2	1024.1	922.0	848.1	788.3	700.3
42.5°	902.7	909.7	936.1	973.1	995.9	973.1	909.7	821.7	749.6	705.6	629.9
45°	800.6	809.4	834.1	855.2	862.2	848.1	791.8	719.7	668.7	622.9	564.8
47.5°	712.6	721.4	739.0	747.8	756.6	742.6	698.6	638.7	587.7	550.8	498.0
50°	645.8	644.0	656.3	659.9	659.9	644.0	607.1	557.8	515.6	485.7	441.7
52.5°	570.1	573.6	582.4	578.9	577.2	563.1	531.4	489.2	454.0	427.6	387.1
55°	515.6	510.3	515.6	512.0	505.0	490.9	462.8	427.6	397.7	374.8	337.8
57.5°	455.7	455.7	457.5	450.5	441.7	425.8	401.2	373.0	346.6	327.3	297.4
60°	401.2	404.7	403.0	395.9	387.1	369.5	350.2	322.0	299.1	285.1	256.9



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	272.7	272.7	267.5	262.2	249.9	234.0	220.0	202.4	190.0	177.7	160.1
70°	232.3	235.8	228.8	220.0	211.2	200.6	184.8	170.7	158.4	149.6	135.5
72.5°	200.6	198.8	193.6	184.8	177.7	165.4	151.3	140.8	130.2	123.2	112.6
75°	165.4	165.4	160.1	153.1	144.3	133.7	123.2	114.4	105.6	98.5	93.3
77.5°	132.0	133.7	128.5	123.2	116.1	105.6	96.8	89.7	82.7	77.4	73.9
80°	102.1	103.8	98.5	95.0	86.2	80.9	73.9	66.9	61.6	58.1	56.3
82.5°	77.4	75.7	72.1	70.4	63.3	58.1	51.0	47.5	44.0	40.5	40.5
85°	51.0	49.3	47.5	45.8	40.5	35.2	33.4	29.9	26.4	24.6	24.6
87.5°	26.4	26.4	24.6	22.9	21.1	17.6	15.8	12.3	10.6	10.6	10.6
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°	1643.5	1643.5	1643.5
1°	1636.4	1629.4	1627.6
2°	1615.3	1604.8	1606.5
3°	1596.0	1583.7	1571.3
4°	1571.3	1552.0	1552.0
5°	1550.2	1530.9	1525.6
6°	1530.9	1499.2	1492.2
7°	1513.3	1474.6	1462.2
8°	1483.4	1444.6	1432.3
9°	1462.2	1420.0	1407.7
10°	1434.1	1391.9	1369.0
11°	1411.2	1363.7	1346.1
12°	1386.6	1328.5	1310.9
13°	1358.4	1298.6	1288.0
14°	1332.0	1274.0	1254.6
15°	1303.9	1244.1	1221.2
16°	1274.0	1214.1	1193.0
17°	1249.3	1182.5	1166.6
18°	1224.7	1154.3	1129.7
19°	1194.8	1127.9	1099.8
20°	1168.4	1094.5	1071.6
21°	1140.2	1069.8	1045.2
22.5°	1101.5	1022.3	999.5
23°	1089.2	1008.3	983.6
24°	1061.0	980.1	959.0
25°	1032.9	959.0	936.1
26°	1008.3	927.3	906.2
27°	983.6	902.7	879.8
28°	957.2	876.3	858.7
29°	930.8	848.1	830.5
30°	902.7	828.8	798.9
32.5°	832.3	765.4	740.8
35°	763.7	705.6	684.5
37.5°	696.8	649.3	629.9
40°	638.7	596.5	577.2
42.5°	578.9	540.2	520.8
45°	517.3	485.7	466.3
47.5°	461.0	434.6	413.5
50°	410.0	383.6	373.0
52.5°	360.7	343.1	348.4
55°	315.0	315.0	313.2
57.5°	271.0	283.3	285.1
60°	237.5	253.4	256.9



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	163.6	172.4	176.0
70°	140.8	147.8	149.6
72.5°	119.7	124.9	128.5
75°	96.8	103.8	103.8
77.5°	79.2	82.7	84.5
80°	59.8	61.6	63.3
82.5°	42.2	44.0	45.8
85°	24.6	26.4	28.2
87.5°	10.6	10.6	10.6
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°	355.4	359.0	353.7	344.9	336.1	320.3	302.7	278.0	260.4	246.3	221.7
65°	311.5	313.2	309.7	300.9	292.1	276.3	258.7	237.5	223.5	209.4	188.3

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62.5°	212.9	225.2	227.0
65°	186.5	197.1	198.8

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Scaled Data Report



(END OF REPORT)