

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: P837600

Luminaire Tested: HCSQ450D010-HM44560830-41SQLWW

Issue Date: 5/17/2024

**Test Information**

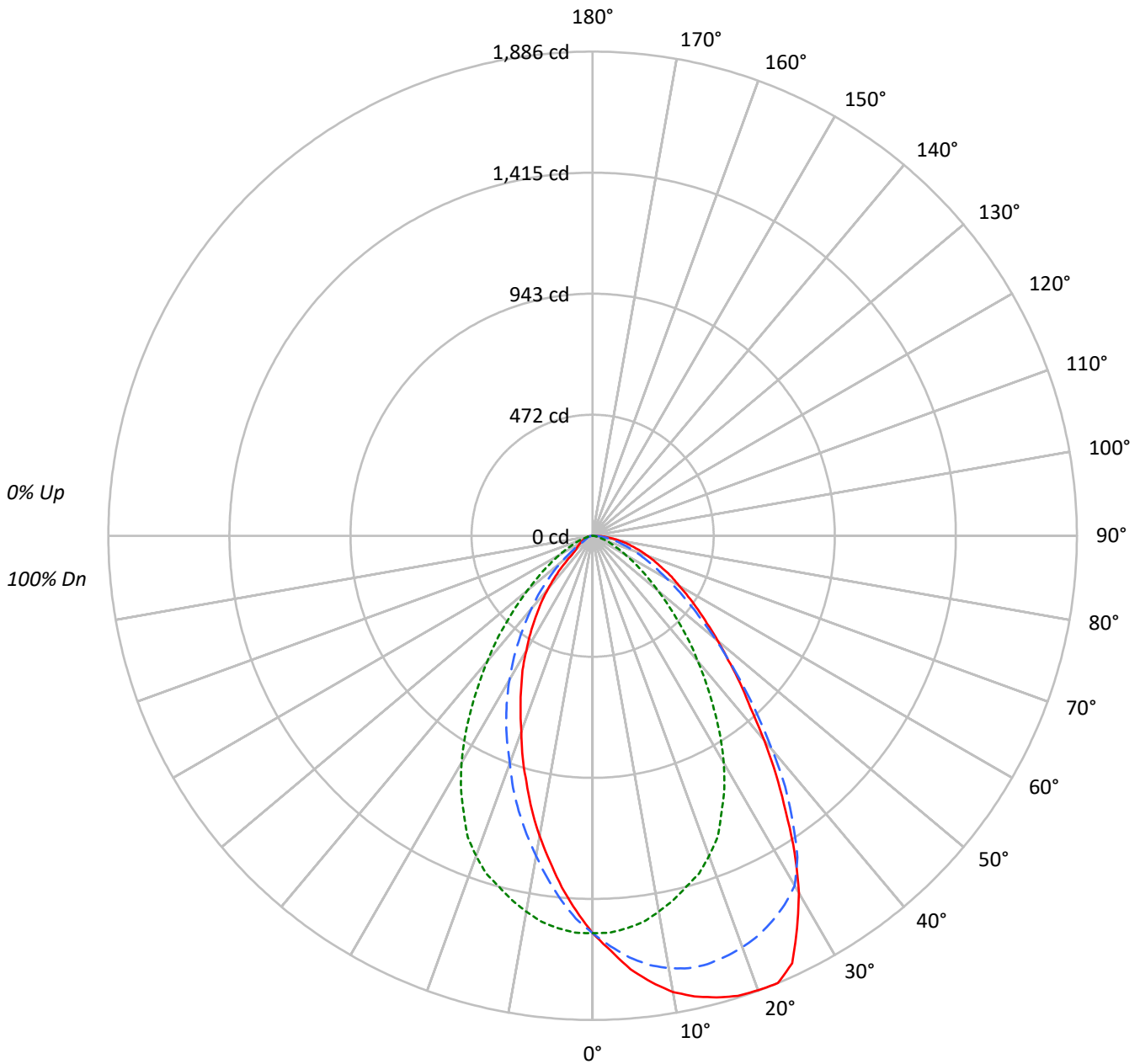
Test Method: LM-79-2019  
Report Number: P837600  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-5)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ450D010-HM44560830-41SQLWW  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2503.7 lumens  
Efficiency: N/A  
Efficacy: 50.4 lumens/watt  
Spacing Criteria (0/90/45): 1.07 / 1.04 / 1.12  
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<sub>in</sub>): 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: P837600  
CATALOG NUMBER: HCSQ450D010-HM44560830-41SQLWW

### Luminous Intensity Polar Plot





TEST NUMBER: P837600

CATALOG NUMBER: HCSQ450D010-HM44560830-41SQLWW

**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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89								
2	103	97	91	87	101	95	90	86	92	87	84	88	85	82	86	83	80	78								
3	96	87	81	76	94	86	80	75	83	78	74	81	76	72	78	74	71	69								
4	89	79	72	67	87	78	71	66	76	70	65	74	69	64	72	67	64	62								
5	83	72	65	59	81	71	64	59	69	63	58	68	62	58	66	61	57	55								
6	78	66	59	53	76	66	58	53	64	57	53	62	57	52	61	56	52	50								
7	73	61	54	48	71	60	53	48	59	53	48	58	52	48	56	51	47	45								
8	68	57	49	44	67	56	49	44	55	48	44	54	48	43	52	47	43	42								
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38								
10	61	49	42	37	60	48	42	37	48	41	37	47	41	37	46	41	37	35								

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	149944	149944	149944	149944	149944
5°	164821	160338	149243	138351	133654
10°	177528	168242	146217	124615	116844
15°	186725	173296	141804	111415	99751
20°	194206	175866	136711	97103	83742
25°	196432	176946	126964	85191	70409
30°	179774	176093	114200	72453	57710
35°	155007	160720	97366	59463	45697
40°	131331	137439	80518	46917	34145
45°	111287	114000	64364	34895	21962
50°	95958	93637	49961	23496	13232
55°	84550	77135	38188	12971	11873
60°	75292	64655	28501	7227	10637
65°	68951	55358	21135	6533	9559
70°	64042	47897	15550	6231	9319
75°	60000	41921	10667	5764	8235
80°	57574	36765	7364	6137	7364
85°	56132	31678	4891	4891	4891

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°  
 Vertical Angle: 45°  
 Luminance: 115808 cd/sqm



TEST NUMBER: P837600

CATALOG NUMBER: HCSQ450D010-HM44560830-41SQLWW

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	145.1	5.8
10°-20°	399.6	16.0
20°-30°	558.7	22.3
30°-40°	546.1	21.8
40°-50°	396.3	15.8
50°-60°	238.9	9.5
60°-70°	134.3	5.4
70°-80°	66.5	2.7
80°-90°	18.2	0.7
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°	1103.4	44.1
0°-40°	1649.5	65.9
0°-60°	2284.7	91.3
0°-90°	2503.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2503.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1548	1548	1548	1548	1548	
5°	1695	1649	1535	1423	1374	165
15°	1862	1728	1414	1111	995	527
25°	1838	1655	1188	797	659	828
35°	1311	1359	823	503	386	821
45°	812	832	470	255	160	630
55°	501	457	226	77	70	450
65°	301	242	92	28	42	301
75°	160	112	28	15	22	173
85°	50	28	4	4	4	56
90°	0	0	0	0	0	



TEST NUMBER: P837600

CATALOG NUMBER: HCSQ450D010-HM44560830-41SQLWW

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	1547.8	1547.8	1547.8	1547.8	1547.8	1547.8	1547.8	1547.8	1547.8
2.5°	1618.1	1613.7	1600.5	1574.2	1547.8	1517.1	1493.0	1475.4	1462.2
5°	1694.9	1686.2	1648.8	1593.9	1534.7	1475.4	1422.7	1392.0	1374.4
7.5°	1754.2	1738.9	1686.2	1609.3	1517.1	1427.1	1345.9	1297.6	1277.8
10°	1804.7	1778.4	1710.3	1607.1	1486.4	1367.8	1266.8	1209.7	1187.8
12.5°	1837.7	1809.1	1725.7	1604.9	1453.4	1308.5	1190.0	1115.3	1093.4
15°	1861.8	1826.7	1727.9	1587.4	1413.9	1247.1	1110.9	1023.1	994.6
17.5°	1879.4	1831.1	1719.1	1567.6	1378.8	1183.4	1029.7	935.3	906.8
20°	1883.8	1831.1	1705.9	1539.1	1326.1	1119.7	941.9	847.5	812.3
22.5°	1886.0	1824.5	1686.2	1503.9	1271.2	1047.3	869.4	770.6	733.3
25°	1837.7	1802.5	1655.4	1444.7	1187.8	968.2	797.0	689.4	658.7
27.5°	1723.5	1721.3	1620.3	1365.6	1110.9	882.6	722.3	619.1	590.6
30°	1607.1	1609.3	1574.2	1277.8	1020.9	801.4	647.7	546.7	515.9
32.5°	1464.4	1486.4	1484.2	1179.0	924.3	724.5	575.2	480.8	450.1
35°	1310.7	1350.2	1359.0	1067.0	823.3	636.7	502.8	417.1	386.4
37.5°	1172.4	1211.9	1231.7	968.2	728.9	559.9	434.7	360.1	329.3
40°	1038.5	1071.4	1086.8	854.1	636.7	480.8	371.0	300.8	270.0
42.5°	908.9	957.2	952.9	757.5	555.5	417.1	314.0	243.7	213.0
45°	812.3	845.3	832.1	656.5	469.8	351.3	254.7	188.8	160.3
47.5°	715.7	739.9	720.1	570.8	397.4	289.8	206.4	138.3	107.6
50°	636.7	647.7	621.3	485.2	331.5	237.1	155.9	92.2	87.8
52.5°	562.1	568.6	531.3	412.8	274.4	191.0	114.2	72.5	76.8
55°	500.6	498.4	456.7	349.1	226.1	147.1	76.8	65.9	70.3
57.5°	441.3	434.7	393.0	289.8	184.4	114.2	46.1	57.1	61.5
60°	388.6	382.0	333.7	239.3	147.1	85.6	37.3	50.5	54.9
62.5°	346.9	331.5	283.2	197.6	118.6	61.5	32.9	43.9	48.3
65°	300.8	287.6	241.5	160.3	92.2	43.9	28.5	37.3	41.7
67.5°	263.5	248.1	204.2	131.7	74.6	30.7	26.3	32.9	37.3
70°	226.1	213.0	169.1	105.4	54.9	19.8	22.0	28.5	32.9
72.5°	195.4	180.0	140.5	83.4	41.7	15.4	19.8	24.2	26.3
75°	160.3	147.1	112.0	63.7	28.5	13.2	15.4	19.8	22.0
77.5°	133.9	120.8	87.8	48.3	19.8	11.0	13.2	17.6	17.6
80°	103.2	92.2	65.9	32.9	13.2	6.6	11.0	13.2	13.2
82.5°	74.6	65.9	46.1	22.0	6.6	6.6	6.6	8.8	8.8
85°	50.5	43.9	28.5	13.2	4.4	4.4	4.4	4.4	4.4
87.5°	28.5	22.0	13.2	4.4	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	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



Report Generated By 670245859 / DESKTOP-T8S5UU9

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report







— 0°-180°    - - 45°-225°    - - - - 90°-270°

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



(END OF REPORT)