

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

Report Number: P694459

Luminaire Tested: HLCE609930-xxx-CA-3000K

Issue Date: 6/29/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P694459  
Test Lab:  
Issue Date: 6/29/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: HLCE609930-xxx-CA-3000K  
Description: 6IN DEDICATED 3000K, 90CRI, DIMMING TO 10%, DAMP LOCATION, CA SKU  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

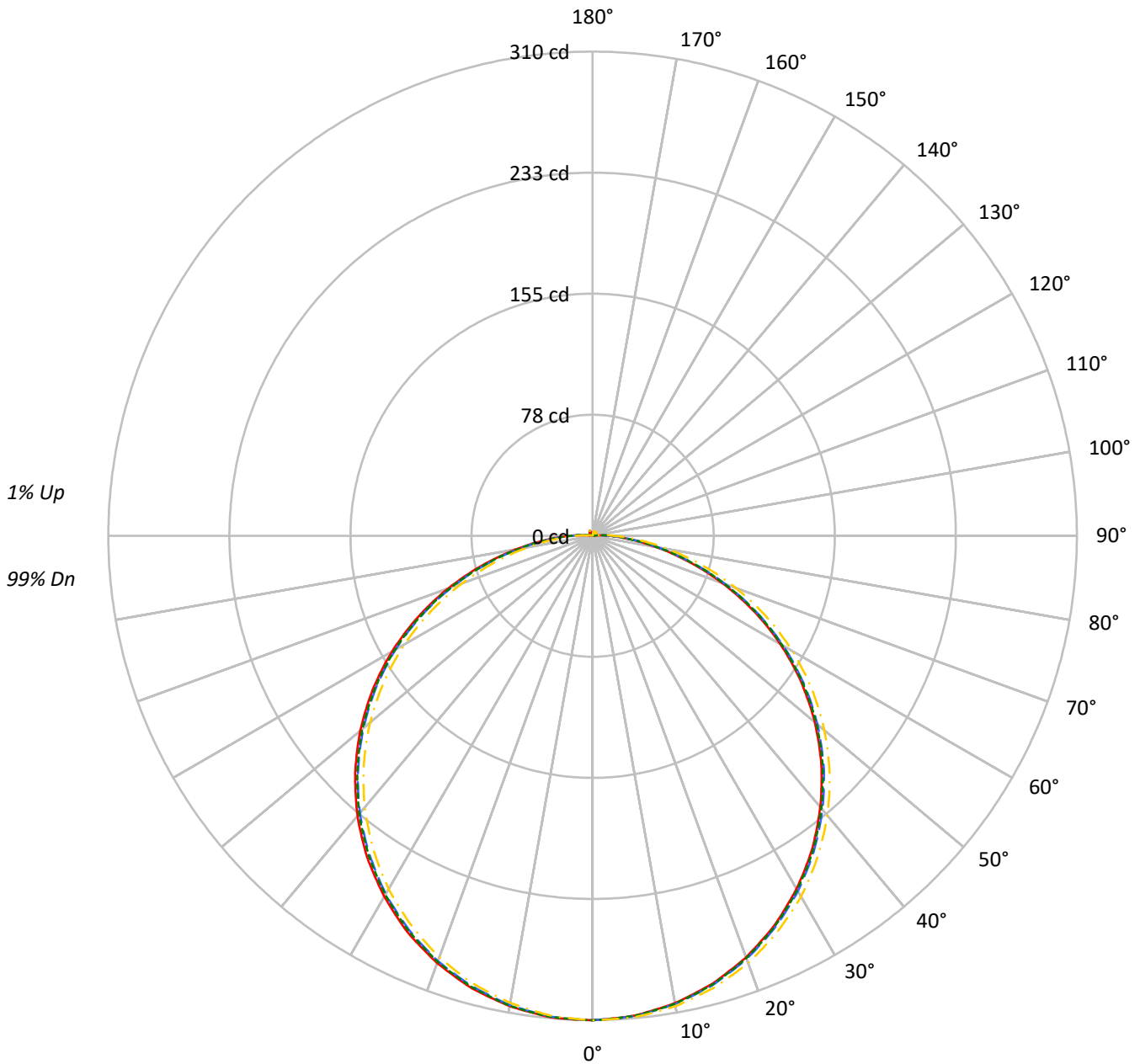
Lumens per Lamp: 947.73 (1 lamp)  
Luminaire Lumens: 940.1 lumens  
Efficiency: 99.2%  
Efficacy: 69.1 lumens/watt  
Spacing Criteria (0/90/45): 1.26 / 1.26 / 1.39  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

Input Watts (W): 13.6  
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	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	118	118	118	118	115	115	115	115	109	109	109	105	105	105	100	100	100	98				
1	107	102	97	93	104	99	95	92	95	92	88	91	88	85	87	85	83	80				
2	97	88	81	75	94	86	80	74	83	77	72	79	74	70	76	72	69	66				
3	88	77	69	62	85	76	68	62	72	66	60	69	64	59	67	62	58	56				
4	81	68	59	53	78	67	59	52	64	57	51	62	55	50	59	54	50	47				
5	74	61	52	45	72	60	51	45	57	50	44	55	49	44	53	48	43	41				
6	68	55	46	39	66	54	45	39	52	44	39	50	43	38	48	42	38	36				
7	63	50	41	35	61	49	40	34	47	40	34	45	39	34	44	38	33	31				
8	59	45	37	31	57	44	36	31	43	36	30	42	35	30	40	34	30	28				
9	55	41	33	28	53	41	33	28	40	32	27	38	32	27	37	31	27	25				
10	52	38	30	25	50	38	30	25	37	30	25	36	29	25	35	29	24	23				

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

	0°	90°	180°	270°
0°	17005	17005	17005	17005
5°	16971	16977	17032	17015
10°	16911	16934	17023	17011
15°	16845	16873	17015	16975
20°	16755	16790	16982	16930
25°	16652	16688	16949	16876
30°	16522	16579	16882	16800
35°	16396	16463	16831	16724
40°	16223	16302	16760	16638
45°	16056	16149	16661	16513
50°	15829	15948	16554	16400
55°	15560	15684	16430	16238
60°	15207	15361	16260	16040
65°	14723	14930	16033	15760
70°	14089	14361	15740	15419
75°	13323	13704	15462	15038
80°	12754	13228	15564	15027
85°	14026	14655	18241	17549

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 180°  
 Vertical Angle: 85°  
 Luminance: 18241 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture	% Lamp
0°-10°	29.4	3.1	3.1
10°-20°	84.2	9.0	8.9
20°-30°	127.9	13.6	13.5
30°-40°	155.2	16.5	16.4
40°-50°	162.6	17.3	17.2
50°-60°	149.4	15.9	15.8
60°-70°	117.1	12.5	12.4
70°-80°	72.2	7.7	7.6
80°-90°	29.4	3.1	3.1
90°-100°	5.8	0.6	0.6
100°-110°	0.8	0.1	0.1
110°-120°	1.0	0.1	0.1
120°-130°	1.3	0.1	0.1
130°-140°	1.4	0.1	0.1
140°-150°	1.2	0.1	0.1
150°-160°	0.8	0.1	0.1
160°-170°	0.4	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	241.5	25.7	25.5
0°-40°	396.7	42.2	41.9
0°-60°	708.7	75.4	74.8
0°-90°	927.4	98.6	97.9
90°-120°	7.6	0.8	0.8
90°-150°	11.5	1.2	1.2
90°-180°	13.0	1.4	1.4
0°-180°	940.1	100.0	99.2

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	310	310	310	310	310	
5°	308	308	310	309	308	29
15°	297	297	300	299	297	84
25°	275	276	280	279	275	127
35°	245	246	252	250	245	153
45°	207	208	215	213	207	160
55°	163	164	172	170	163	145
65°	114	115	124	122	114	112
75°	63	65	73	71	63	67
85°	22	23	29	28	22	22
90°	10	10	14	14	10	6
95°	2	4	2	5	2	3
105°	1	1	0	0	1	1
115°	1	1	1	1	1	1
125°	2	1	2	1	2	2
135°	2	2	3	1	2	2
145°	2	2	2	1	2	1
155°	2	2	2	1	2	1
165°	1	2	1	1	1	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	310.2	310.2	310.2	310.2	310.2	310.2	310.2	310.2	310.2	310.2	310.2
5°	308.4	308.7	308.8	308.9	308.5	309.0	309.4	309.3	309.5	309.2	309.0
10°	303.8	304.4	304.4	305.0	304.2	305.5	305.8	305.9	305.8	305.6	305.2
15°	296.8	297.3	297.7	298.5	297.3	299.0	299.6	299.6	299.8	299.4	298.5
20°	287.2	287.9	288.3	289.3	287.8	290.1	291.1	291.1	291.1	290.4	289.8
25°	275.3	276.2	276.6	278.0	275.9	278.9	279.8	279.9	280.2	279.4	278.3
30°	261.0	262.2	262.8	264.3	261.9	265.3	266.8	266.7	266.7	265.7	264.9
35°	245.0	246.2	246.8	248.4	246.0	249.7	251.1	251.2	251.5	250.2	249.1
40°	226.7	228.0	228.9	230.7	227.8	232.2	233.8	233.8	234.2	232.7	231.8
45°	207.1	208.5	209.2	211.1	208.3	212.7	214.6	214.5	214.9	213.7	212.4
50°	185.6	187.1	187.8	190.0	187.0	191.8	193.6	193.8	194.1	192.8	191.5
55°	162.8	164.1	165.0	167.2	164.1	169.4	171.4	171.5	171.9	170.4	169.2
60°	138.7	140.1	140.9	143.3	140.1	145.6	147.6	147.7	148.3	146.7	145.6
65°	113.5	114.9	115.8	118.2	115.1	120.8	122.9	122.9	123.6	122.0	120.8
70°	87.9	89.3	90.1	92.5	89.6	95.2	97.4	97.5	98.2	96.7	95.6
75°	62.9	64.2	65.1	67.3	64.7	70.1	72.2	72.2	73.0	71.4	70.4
80°	40.4	41.5	42.1	44.2	41.9	46.7	48.6	48.7	49.3	47.9	47.1
85°	22.3	22.8	23.5	24.9	23.3	27.2	28.4	28.6	29.0	28.0	27.3
90°	10.0	10.2	10.5	11.4	10.5	13.1	13.8	14.0	14.2	13.7	13.1
95°	1.6	3.6	3.6	4.2	3.8	4.7	5.1	5.1	1.9	4.9	5.0
100°	0.5	0.9	1.0	1.2	1.0	1.5	1.3	1.5	0.8	1.3	1.2
105°	0.6	0.7	0.6	0.8	0.6	0.8	0.8	0.7	0.5	0.3	0.3
110°	0.9	1.0	0.9	0.9	0.8	0.9	1.2	1.2	0.8	0.2	0.6
115°	1.2	1.2	1.1	1.0	0.9	1.2	1.6	1.5	1.2	0.4	0.7
120°	1.5	1.4	1.5	1.2	1.2	1.5	2.0	1.9	1.4	0.5	0.7
125°	1.7	1.5	2.0	1.5	1.4	1.7	2.5	2.2	2.0	0.6	0.7
130°	2.2	1.6	2.0	1.7	1.6	1.8	3.2	2.6	2.5	0.7	0.7
135°	2.0	1.6	2.3	1.8	1.8	1.8	3.3	2.8	2.7	1.0	0.7
140°	1.9	1.8	2.3	2.0	1.9	1.6	2.4	2.7	2.5	1.3	0.7
145°	2.3	1.8	2.5	2.0	2.0	1.5	2.1	3.2	2.4	1.3	0.8
150°	2.8	1.7	2.1	1.4	1.9	1.4	2.2	2.3	3.7	1.3	0.9
155°	1.5	1.5	2.0	1.6	1.6	1.5	1.4	3.2	2.2	1.3	1.0
160°	1.4	2.0	1.4	1.9	1.1	1.7	1.4	2.7	1.5	1.0	0.8
165°	1.0	1.1	2.9	1.6	1.5	1.7	3.1	1.3	1.2	0.9	0.6
170°	0.8	0.7	0.7	0.9	0.6	1.4	1.3	1.2	1.0	0.8	0.2
175°	0.1	0.0	0.0	0.2	0.2	0.2	0.3	0.6	0.3	0.0	0.1
180°	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):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	310.2	310.2	310.2	310.2	310.2	310.2
5°	308.8	309.2	308.4	308.4	308.4	308.4
10°	304.6	305.6	304.2	303.7	303.7	303.8
15°	297.8	299.1	297.0	296.7	296.9	296.8
20°	288.7	290.2	287.8	287.1	287.2	287.2
25°	277.1	279.0	276.0	275.0	275.4	275.3
30°	263.3	265.4	262.0	261.2	261.3	261.0
35°	247.6	249.9	246.2	244.9	245.2	245.0
40°	229.6	232.5	228.2	227.0	227.2	226.7
45°	210.4	213.0	208.6	207.1	207.4	207.1
50°	189.2	192.3	187.5	185.9	186.1	185.6
55°	166.9	169.9	164.7	163.1	163.4	162.8
60°	143.1	146.3	140.8	139.0	139.2	138.7
65°	118.3	121.5	115.9	114.0	114.2	113.5
70°	93.0	96.2	90.6	88.6	88.6	87.9
75°	68.1	71.0	65.7	63.8	63.7	62.9
80°	45.1	47.6	43.0	41.2	41.2	40.4
85°	26.0	27.9	24.2	22.9	22.7	22.3
90°	12.2	13.7	11.1	10.3	10.2	10.0
95°	4.4	5.0	4.0	3.4	3.6	1.6
100°	1.2	1.5	1.0	0.9	0.9	0.5
105°	0.4	0.5	0.5	0.7	0.6	0.6
110°	0.5	0.5	0.7	0.9	0.9	0.9
115°	0.7	0.7	0.9	1.2	1.1	1.2
120°	0.7	0.8	1.1	1.5	1.3	1.5
125°	0.8	0.8	1.2	1.7	1.6	1.7
130°	0.9	0.9	1.4	2.5	1.8	2.2
135°	0.9	1.0	1.4	2.6	1.9	2.0
140°	1.0	1.0	1.6	2.1	1.9	1.9
145°	0.9	1.0	1.3	2.8	1.8	2.3
150°	0.9	1.0	1.3	3.7	2.1	2.8
155°	0.9	1.0	1.2	2.2	3.3	1.5
160°	0.9	1.0	1.2	1.2	1.6	1.4
165°	0.5	0.9	1.1	1.1	1.3	1.0
170°	0.2	0.2	0.5	0.9	0.9	0.8
175°	0.2	0.2	0.2	0.1	0.3	0.1
180°	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



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Scaled Data Report





— 0°-180°    - - 45°-225°    - - - - 90°-270°    - · - 135°-315°

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