

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: P694458

Luminaire Tested: HLCE4079301EWH-xxx-3000K

Issue Date: 6/29/2023

Test Information

Test Method: LM-79-2019
Report Number: P694458
Test Lab:
Issue Date: 6/29/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: HLCE4079301EWH-xxx-3000K
Description: 4IN DEDICATED 3000K, 90CRI, DIMMING TO 10%, DAMP LOCATION
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

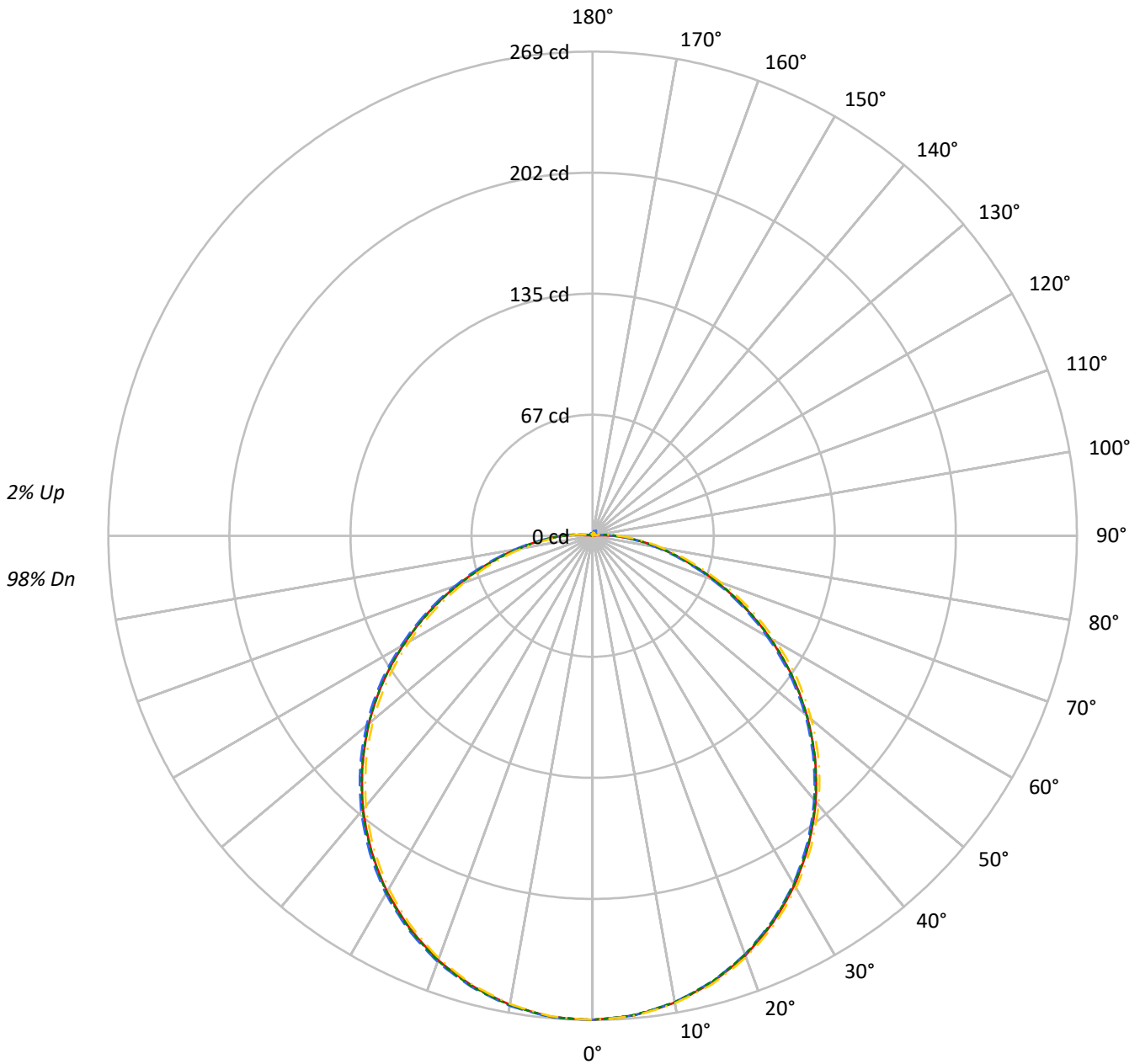
Lumens per Lamp: 816.24 (1 lamp)
Luminaire Lumens: 800.1 lumens
Efficiency: 98.0%
Efficacy: 72.7 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.25 / 1.37
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 11
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										
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	116	116	116	116	113	113	113	113	108	108	108	103	103	103	98	98	98	96								
1	105	100	96	92	103	98	94	90	93	90	87	89	87	84	85	83	81	79								
2	96	87	80	74	93	85	79	73	81	76	71	78	73	69	75	71	68	65								
3	87	76	68	62	84	75	67	61	72	65	60	69	63	58	66	61	57	55								
4	80	68	59	52	77	66	58	52	63	56	51	61	55	50	59	53	49	47								
5	73	60	51	45	71	59	51	44	57	49	44	55	48	43	53	47	42	40								
6	68	54	45	39	66	53	45	39	51	44	38	49	43	38	48	42	37	35								
7	63	49	41	34	61	48	40	34	47	39	34	45	38	33	44	38	33	31								
8	58	45	36	31	57	44	36	31	43	35	30	41	35	30	40	34	30	28								
9	54	41	33	28	53	41	33	27	39	32	27	38	32	27	37	31	27	25								
10	51	38	30	25	50	37	30	25	36	29	25	35	29	24	34	28	24	23								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	33841	33841	33841	33841
5°	33781	33756	33882	33882
10°	33647	33622	33814	33826
15°	33458	33406	33719	33771
20°	33227	33160	33602	33642
25°	32910	32854	33396	33451
30°	32580	32508	33191	33249
35°	32156	32110	32893	32939
40°	31674	31592	32594	32660
45°	31093	31075	32179	32232
50°	30406	30386	31757	31796
55°	29599	29643	31244	31222
60°	28618	28669	30556	30556
65°	27515	27635	29898	29779
70°	26383	26567	29253	29032
75°	25625	25868	29126	28834
80°	26163	26525	30729	30294
85°	32778	33211	39853	39131

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 225°
 Vertical Angle: 85°
 Luminance: 41153 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	25.4	3.2	3.1
10°-20°	72.8	9.1	8.9
20°-30°	110.1	13.8	13.5
30°-40°	132.4	16.6	16.2
40°-50°	137.2	17.1	16.8
50°-60°	123.9	15.5	15.2
60°-70°	95.6	11.9	11.7
70°-80°	60.0	7.5	7.3
80°-90°	28.2	3.5	3.5
90°-100°	7.9	1.0	1.0
100°-110°	1.2	0.2	0.2
110°-120°	1.0	0.1	0.1
120°-130°	1.2	0.1	0.1
130°-140°	1.2	0.1	0.1
140°-150°	1.1	0.1	0.1
150°-160°	0.7	0.1	0.1
160°-170°	0.3	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	208.3	26.0	25.5
0°-40°	340.7	42.6	41.7
0°-60°	601.8	75.2	73.7
0°-90°	785.6	98.2	96.2
90°-120°	10.1	1.3	1.2
90°-150°	13.6	1.7	1.7
90°-180°	15.0	1.9	1.8
0°-180°	800.1	100.0	98.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	269	269	269	269	269	
5°	267	267	268	268	267	25
15°	257	256	259	259	257	72
25°	237	237	240	241	237	109
35°	209	209	214	214	209	131
45°	175	175	181	181	175	135
55°	135	135	142	142	135	121
65°	92	93	100	100	92	92
75°	53	53	60	59	53	56
85°	23	23	28	27	23	21
90°	10	13	16	16	10	6
95°	2	6	3	8	2	3
105°	1	1	0	1	1	1
115°	1	1	1	1	1	1
125°	2	1	1	1	2	1
135°	2	1	1	1	2	1
145°	2	1	1	1	2	1
155°	1	1	1	1	1	1
165°	1	1	0	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°	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9
5°	267.4	267.3	267.3	267.2	267.2	267.4	267.6	267.7	268.2	268.2	268.4
10°	263.3	263.2	263.0	263.0	263.1	263.3	263.7	264.1	264.6	264.8	265.2
15°	256.8	256.6	256.3	256.4	256.4	256.8	257.7	258.1	258.8	259.1	259.6
20°	248.1	247.8	247.4	247.4	247.6	248.0	249.1	249.7	250.9	251.1	251.9
25°	237.0	236.8	236.1	236.5	236.6	237.2	238.5	239.3	240.5	240.9	241.8
30°	224.2	223.7	223.1	223.3	223.7	224.2	225.9	226.7	228.4	228.8	229.7
35°	209.3	208.9	208.0	208.5	209.0	209.6	211.4	212.4	214.1	214.5	215.6
40°	192.8	192.1	191.4	191.9	192.3	193.3	195.2	196.3	198.4	199.0	200.0
45°	174.7	174.2	173.2	173.9	174.6	175.5	177.7	178.9	180.8	181.5	182.7
50°	155.3	154.6	153.9	154.5	155.2	156.3	158.6	160.1	162.2	163.0	164.0
55°	134.9	134.3	133.2	134.0	135.1	136.0	138.7	140.1	142.4	143.1	144.3
60°	113.7	113.0	112.0	112.8	113.9	115.2	117.6	119.2	121.4	122.3	123.4
65°	92.4	91.7	90.8	91.4	92.8	94.0	96.5	97.9	100.4	101.1	102.3
70°	71.7	71.1	70.1	70.9	72.2	73.3	75.7	77.1	79.5	80.2	81.3
75°	52.7	52.0	51.2	51.8	53.2	54.2	56.4	57.7	59.9	60.4	61.5
80°	36.1	35.3	34.8	35.3	36.6	37.5	39.4	40.4	42.4	42.7	43.7
85°	22.7	22.0	21.6	22.0	23.0	23.8	25.2	26.1	27.6	27.8	28.5
90°	9.9	12.0	11.6	12.0	12.8	13.2	14.3	15.1	16.4	16.4	16.8
95°	2.3	5.3	5.2	5.4	5.9	6.2	6.9	7.3	2.9	8.0	8.4
100°	0.9	1.8	1.9	1.9	2.0	2.3	2.4	2.6	1.4	3.1	3.5
105°	0.6	0.8	0.9	0.8	0.8	0.8	0.8	0.7	0.5	0.8	0.9
110°	0.8	1.2	1.2	1.0	0.9	0.7	0.8	0.7	0.4	0.7	0.8
115°	1.1	1.5	1.7	1.0	0.8	1.0	1.0	0.9	0.7	0.9	1.1
120°	1.4	1.7	2.3	1.5	1.1	1.0	1.1	1.1	0.9	1.1	1.3
125°	1.7	1.9	2.4	1.6	1.3	1.1	1.2	1.2	1.1	1.2	1.7
130°	1.8	2.1	2.4	2.0	1.4	1.2	1.3	1.4	1.3	1.3	1.6
135°	1.9	2.2	2.5	2.2	1.3	1.3	1.4	1.5	1.4	1.4	1.7
140°	2.1	2.2	2.8	2.6	1.4	1.4	1.6	2.0	1.5	1.4	1.7
145°	2.1	2.2	3.4	3.9	1.2	1.4	1.7	2.8	1.4	1.5	1.5
150°	1.8	2.1	2.2	2.5	0.9	1.4	1.5	1.2	1.2	1.5	1.5
155°	1.3	2.1	2.2	3.5	1.0	1.5	1.4	1.2	1.2	1.4	1.2
160°	1.5	2.3	1.7	1.3	1.0	1.6	1.0	1.5	1.1	1.1	0.8
165°	1.0	1.8	2.7	1.6	1.3	0.9	1.9	0.4	0.4	0.5	0.4
170°	0.4	0.8	1.4	0.6	0.5	0.7	0.3	0.4	0.2	0.2	0.2
175°	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.0
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°	268.9	268.9	268.9	268.9	268.9	268.9
5°	268.3	268.2	268.1	267.9	267.6	267.4
10°	265.0	264.7	264.7	264.1	263.7	263.3
15°	259.3	259.2	259.0	258.1	257.6	256.8
20°	251.3	251.2	250.8	249.8	249.1	248.1
25°	241.3	240.9	240.6	239.0	238.4	237.0
30°	229.0	228.8	228.0	226.5	225.6	224.2
35°	214.9	214.4	214.0	212.0	211.0	209.3
40°	199.2	198.8	197.8	195.9	194.6	192.8
45°	181.9	181.1	180.2	178.0	176.7	174.7
50°	163.3	162.4	161.3	158.9	157.6	155.3
55°	143.3	142.3	141.2	138.7	137.1	134.9
60°	122.6	121.4	120.2	117.6	116.0	113.7
65°	101.4	100.0	98.8	96.2	94.7	92.4
70°	80.5	78.9	77.8	75.4	73.9	71.7
75°	60.7	59.3	58.2	56.0	54.6	52.7
80°	43.0	41.8	41.0	38.9	37.8	36.1
85°	28.2	27.1	26.4	24.9	23.8	22.7
90°	16.7	15.9	15.2	14.1	13.2	9.9
95°	8.2	7.7	7.4	6.6	6.1	2.3
100°	3.3	2.9	2.7	2.4	2.0	0.9
105°	1.0	0.8	0.8	0.7	0.5	0.6
110°	0.8	0.7	0.8	0.8	0.6	0.8
115°	1.0	0.8	0.9	0.8	0.8	1.1
120°	1.2	1.0	0.9	0.8	0.9	1.4
125°	1.3	1.1	0.9	0.8	1.0	1.7
130°	1.4	1.1	0.9	0.9	1.1	1.8
135°	1.5	1.2	0.9	1.0	1.2	1.9
140°	1.6	1.2	1.1	1.1	1.2	2.1
145°	2.1	1.3	1.1	1.2	1.2	2.1
150°	1.9	1.3	1.1	1.3	1.0	1.8
155°	1.2	1.4	1.1	1.0	1.1	1.3
160°	1.1	1.5	1.0	0.8	0.8	1.5
165°	0.5	1.0	0.5	0.6	0.8	1.0
170°	0.5	0.3	0.3	0.3	0.5	0.4
175°	0.0	0.1	0.2	0.0	0.0	0.0
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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