

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: HALO

Report Number: P295520

Luminaire Tested: **HU1109D9SMB-4000K**

Issue Date: 3/3/2020

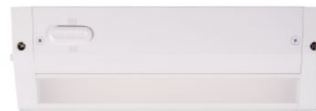
Test Information

Test Method: LM-79-08
Report Number: P295520
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1904-227-2)
Test Lab: INNOVATION CENTER(G3)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HU1109D9SMB-4000K
Description: HALO HU11 UNDERCABINET LED FIXTURE
9-INCH, SELECTABLE CCT, MATTE BLACK FINISH
Light Source: (56) 90 CRI LEDS TUNED TO 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

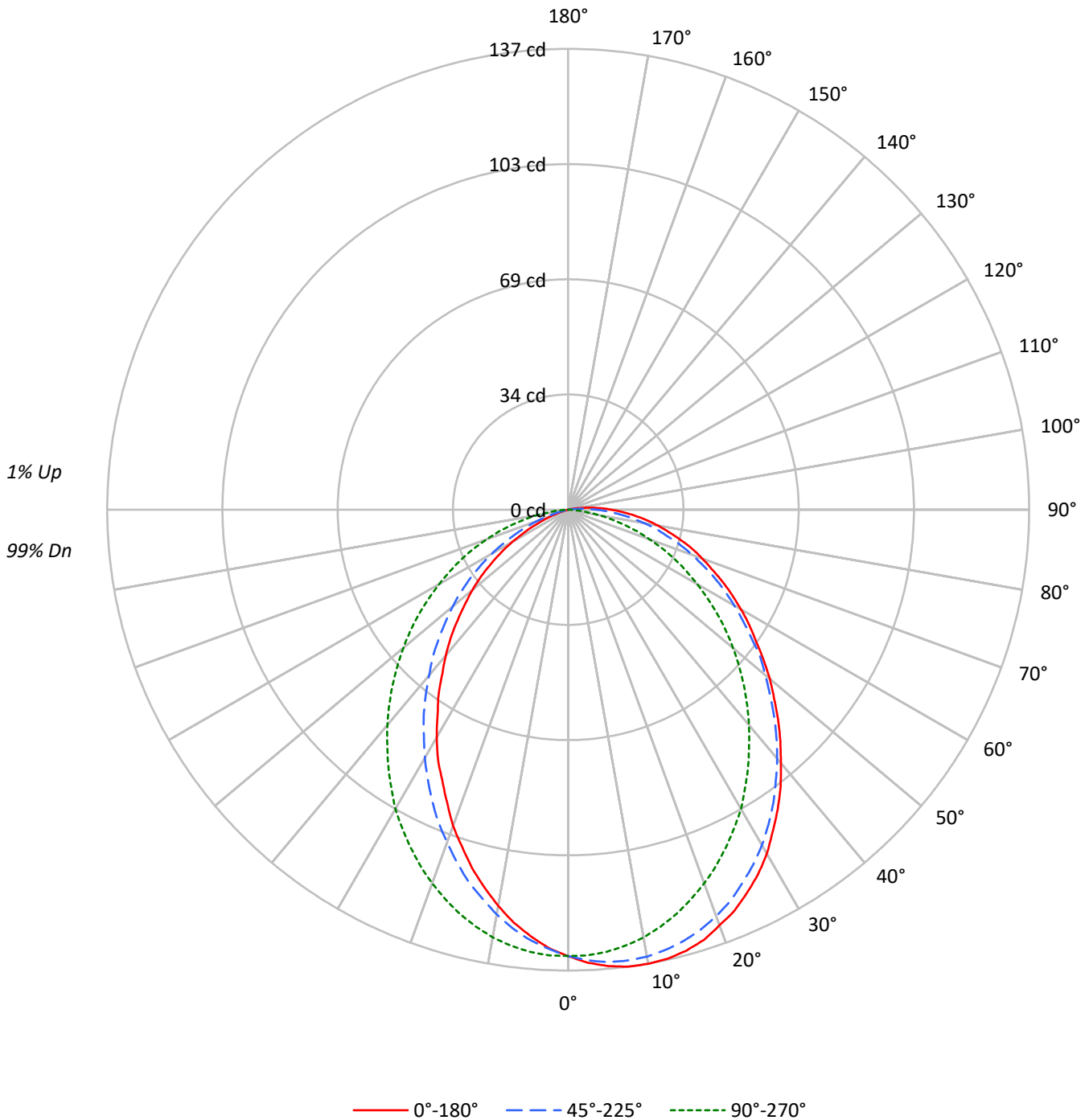
Lumens per Lamp: N/A
Luminaire Lumens: 315.0 lumens
Efficiency: N/A
Efficacy: 70.0 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 1.16 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.75' x L: 0.08' x H: 0.04')
CIE Type: Direct

Input Watts (W): 4.5
Input Voltage (V): 120
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: 25 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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	101	101	101	99
1	109	104	100	96	106	102	98	95	97	94	91	93	91	89	90	88	86	84
2	99	91	85	79	97	90	83	78	86	81	76	83	78	75	79	76	73	71
3	91	81	73	67	89	79	72	66	76	70	65	73	68	64	71	66	62	60
4	84	72	64	57	81	71	63	57	68	61	56	66	60	55	64	58	54	52
5	77	65	56	50	75	64	55	49	61	54	49	59	53	48	58	52	48	45
6	72	59	50	44	70	58	49	43	56	48	43	54	48	43	52	47	42	40
7	66	53	45	39	65	52	44	39	51	44	38	49	43	38	48	42	38	36
8	62	49	41	35	60	48	40	35	47	40	34	45	39	34	44	38	34	32
9	58	45	37	32	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	55	42	34	29	53	41	34	29	40	33	28	39	33	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	22854	22854	22854
5°	22560	22693	21085
10°	22033	22358	19221
15°	21337	21855	17343
20°	20390	21234	15506
25°	19370	20523	13653
30°	18225	19789	12052
35°	16912	18861	10465
40°	15568	17958	8964
45°	14321	17029	7550
50°	13129	16083	6245
55°	11929	15050	4905
60°	10946	13920	3544
65°	9951	12781	2124
70°	8994	11227	912
75°	8010	9369	70
80°	6981	7089	0
85°	5797	3505	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	12.5	4.0
10°-20°	34.8	11.0
20°-30°	50.2	15.9
30°-40°	56.6	18.0
40°-50°	54.4	17.3
50°-60°	45.7	14.5
60°-70°	32.6	10.3
70°-80°	18.4	5.8
80°-90°	7.9	2.5
90°-100°	1.9	0.6
100°-110°	0.1	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°	97.5	30.9
0°-40°	154.1	48.9
0°-60°	254.2	80.7
0°-90°	313.0	99.4
90°-120°	2.0	0.6
90°-150°	2.0	0.6
90°-180°	2.0	0.6
0°-180°	315.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	133	133	133	133	133	
5°	136	135	132	128	127	13
15°	136	133	124	114	110	38
25°	126	122	111	96	89	58
35°	109	106	93	75	67	68
45°	88	86	74	54	46	68
55°	68	66	54	35	28	61
65°	51	48	35	17	11	50
75°	34	31	17	3	0	37
85°	20	15	3	0	0	18
90°	13	8	0	0	0	7
95°	7	3	0	0	0	5
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	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°
0°	132.7	132.7	132.7	132.7	132.7	132.7	132.7	132.7	132.7
2.5°	134.8	134.4	134.1	133.5	132.6	131.8	130.7	130.4	130.5
5°	136.2	135.6	135.0	133.7	131.9	130.3	128.5	127.4	127.3
7.5°	137.0	136.3	135.2	133.3	130.7	128.3	125.6	124.3	123.8
10°	137.1	136.5	134.9	132.4	129.1	125.7	122.2	120.1	119.6
12.5°	136.7	135.9	134.0	131.0	126.9	122.5	118.3	116.0	115.0
15°	135.7	134.9	132.7	129.2	124.4	119.1	114.5	111.3	110.3
17.5°	134.1	133.1	130.9	127.0	121.4	116.0	109.9	106.4	105.0
20°	131.5	130.9	128.6	124.3	118.2	111.9	105.2	101.2	100.0
22.5°	129.1	128.2	125.9	121.2	114.7	107.5	100.7	96.1	94.1
25°	125.7	124.9	122.5	118.0	110.8	103.0	95.6	90.8	88.6
27.5°	122.2	121.5	119.0	114.3	106.8	98.6	90.4	84.9	83.8
30°	118.1	117.5	115.2	110.3	102.7	94.0	85.2	79.6	78.1
32.5°	113.2	113.1	110.8	106.1	97.9	88.9	79.8	74.3	72.2
35°	108.6	108.1	106.3	101.6	93.2	83.9	74.9	69.2	67.2
37.5°	103.7	103.1	101.4	97.1	88.3	78.5	69.5	63.7	61.4
40°	98.3	98.0	96.6	92.2	83.6	73.5	64.3	58.3	56.6
42.5°	93.3	92.9	91.6	87.2	78.7	68.6	59.6	53.4	51.7
45°	88.2	87.9	86.5	82.3	73.8	63.6	54.5	48.5	46.5
47.5°	83.0	82.6	81.3	77.5	68.8	58.6	49.4	43.6	41.5
50°	78.2	77.9	76.4	72.4	64.0	53.6	44.8	38.9	37.2
52.5°	73.1	72.6	72.0	67.3	59.1	48.8	40.2	34.5	32.6
55°	68.1	68.0	66.4	62.4	54.1	44.0	35.4	29.4	28.0
57.5°	63.8	63.2	61.6	57.7	49.1	39.4	30.8	25.5	23.4
60°	59.3	58.8	57.0	52.8	44.3	34.7	26.2	20.9	19.2
62.5°	54.9	54.3	52.5	47.9	39.6	29.8	21.8	16.9	14.9
65°	50.6	49.9	48.0	43.1	35.1	25.4	17.4	12.6	10.8
67.5°	46.2	45.8	43.4	38.6	30.4	21.0	13.6	9.2	7.3
70°	42.4	41.5	39.1	34.0	25.7	16.7	9.5	5.4	4.3
72.5°	38.6	37.6	35.0	29.5	21.5	12.6	6.0	2.8	1.7
75°	34.5	33.8	30.6	25.1	17.0	8.8	3.1	0.7	0.3
77.5°	30.6	29.7	26.9	21.0	13.1	5.4	0.9	0.0	0.0
80°	27.0	25.9	22.9	17.1	9.4	2.6	0.1	0.0	0.0
82.5°	23.4	22.3	19.0	13.1	5.7	0.7	0.0	0.0	0.0
85°	19.7	18.7	15.2	9.4	2.9	0.1	0.0	0.0	0.0
87.5°	16.2	15.3	11.8	6.3	0.9	0.0	0.0	0.0	0.0
90°	12.9	11.8	8.5	3.3	0.1	0.0	0.0	0.0	0.0
92.5°	9.8	8.8	5.4	1.3	0.0	0.0	0.0	0.0	0.0
95°	6.8	5.8	3.0	0.2	0.0	0.1	0.0	0.0	0.0
97.5°	4.1	3.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0
100°	2.2	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110°	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):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	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

(END OF REPORT)