

LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P518114

Luminaire Tested: HVL8-4-LD4-3HI-35-UNV-O-EDD

Issue Date: 4/27/2021

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

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Test Information

Test Method: LM-79-2019
Report Number: P518114
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3HI-35-UNV-O-EDD
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10732.0 lumens
Efficiency: N/A
Efficacy: 85.2 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.27 / 1.38
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

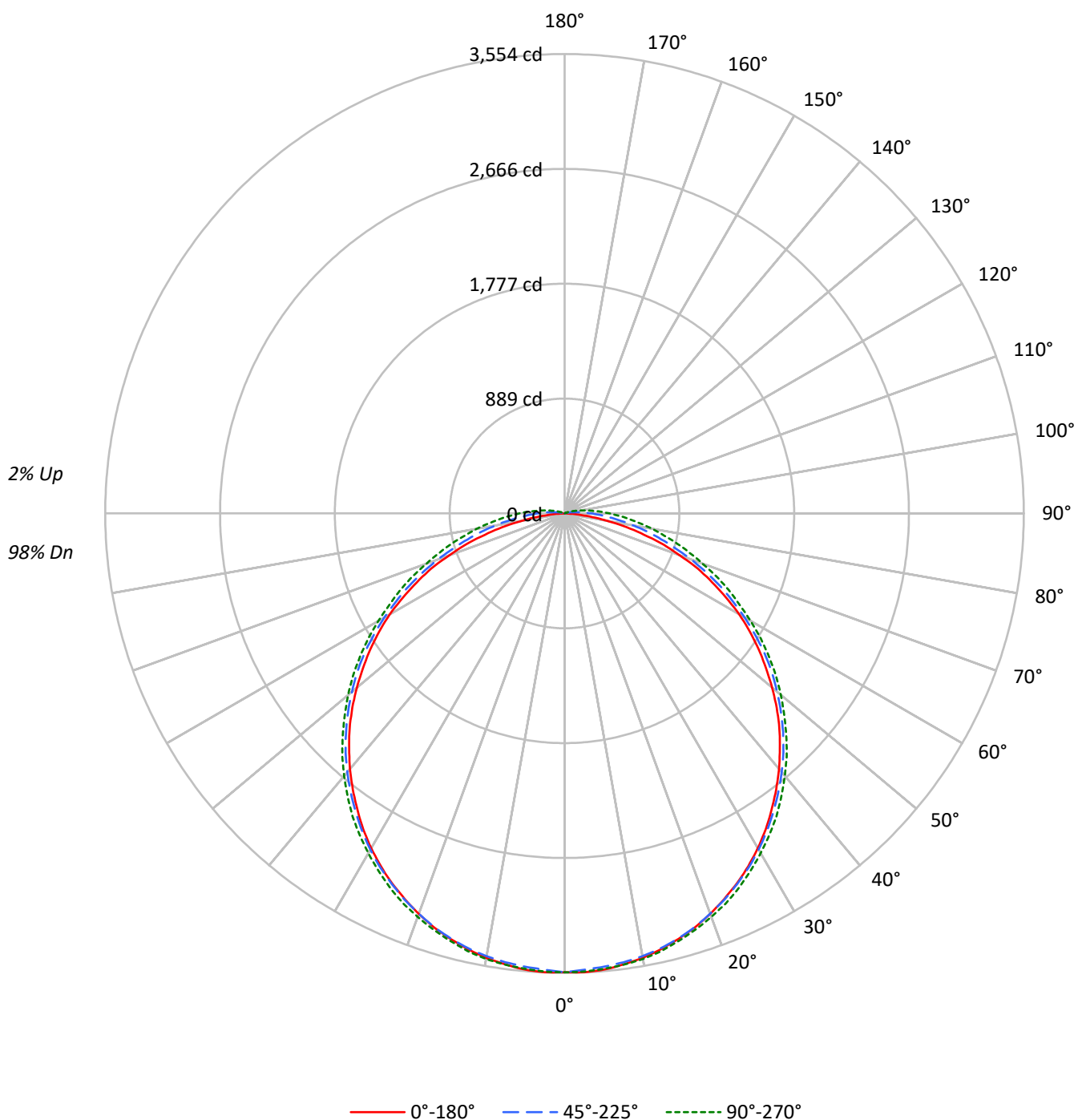
Input Watts (W): 125.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	P3	10/30/2015	4/30/2016
Power Meter	IN0214	1/12/2016	1/12/2017
AC Power Source	IN0062	1/12/2016	1/12/2017
DC Power Supply	--	--	--
Room Thermometer	IN0145	1/13/2016	1/13/2017

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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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	110	110	110	105	105	105	101	101	101			98
1	108	102	98	94	105	100	96	92	95	92	89	91	88	86	87	85	83			81
2	98	89	82	76	95	87	80	75	83	77	73	79	75	71	76	72	69			67
3	89	78	69	63	86	76	68	62	73	66	61	70	64	59	67	62	58			56
4	81	69	60	53	79	67	59	52	65	57	52	62	56	51	60	54	50			47
5	75	61	52	45	72	60	52	45	58	50	44	56	49	44	54	48	43			41
6	69	55	46	40	67	54	46	39	52	45	39	50	44	38	49	43	38			36
7	64	50	41	35	62	49	41	35	47	40	34	46	39	34	44	38	34			32
8	59	46	37	31	58	45	37	31	43	36	31	42	35	30	41	35	30			28
9	55	42	34	28	54	41	33	28	40	33	28	39	32	27	38	32	27			25
10	52	39	31	25	51	38	30	25	37	30	25	36	29	25	35	29	25			23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	14327	14327	14327
5°	14300	14007	14021
10°	14204	13757	13740
15°	14081	13479	13403
20°	13950	13169	13076
25°	13793	12851	12743
30°	13611	12511	12364
35°	13381	12138	11990
40°	13142	11745	11553
45°	12885	11317	11081
50°	12549	10822	10574
55°	12188	10280	10014
60°	11756	9575	9361
65°	11056	8788	8714
70°	10048	7860	7961
75°	8616	6842	7277
80°	6481	5845	6652
85°	3466	4836	6057

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 12885 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	335.9	3.1
10°-20°	963.5	9.0
20°-30°	1461.9	13.6
30°-40°	1767.7	16.5
40°-50°	1844.5	17.2
50°-60°	1686.4	15.7
60°-70°	1314.6	12.2
70°-80°	822.4	7.7
80°-90°	373.5	3.5
90°-100°	125.2	1.2
100°-110°	31.4	0.3
110°-120°	4.9	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°	2761.3	25.7
0°-40°	4529.0	42.2
0°-60°	8059.9	75.1
0°-90°	10570.4	98.5
90°-120°	161.6	1.5
90°-150°	161.6	1.5
90°-180°	162.0	1.5
0°-180°	10732.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3550	3550	3550	3550	3550	
5°	3542	3535	3519	3536	3536	336
15°	3407	3413	3404	3423	3422	962
25°	3157	3160	3163	3190	3195	1455
35°	2795	2807	2819	2848	2859	1749
45°	2351	2372	2391	2415	2427	1812
55°	1835	1857	1891	1919	1931	1639
65°	1261	1283	1327	1380	1402	1248
75°	638	678	776	869	902	681
85°	110	204	351	464	505	140
90°	1	76	207	310	348	4
95°	1	20	107	194	224	1
105°	2	2	18	52	70	2
115°	2	2	3	9	13	2
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°
0°	3549.5	3549.5	3549.5	3549.5	3549.5
2.5°	3553.7	3548.7	3532.8	3548.7	3547.8
5°	3542.0	3535.3	3519.4	3536.1	3536.1
7.5°	3518.5	3516.0	3501.8	3521.0	3521.0
10°	3490.9	3490.1	3478.4	3499.3	3500.1
12.5°	3452.4	3455.8	3444.9	3465.0	3467.5
15°	3407.2	3413.1	3403.9	3423.1	3422.3
17.5°	3357.9	3361.2	3354.5	3376.3	3375.5
20°	3296.8	3301.0	3296.0	3318.6	3321.1
22.5°	3229.0	3234.9	3234.0	3257.5	3264.2
25°	3157.1	3159.6	3162.9	3189.7	3194.7
27.5°	3077.6	3081.8	3087.6	3111.9	3116.9
30°	2990.5	2997.2	3003.9	3029.0	3035.7
32.5°	2898.5	2905.2	2913.6	2946.2	2949.5
35°	2794.7	2807.3	2819.0	2847.5	2859.2
37.5°	2691.0	2706.9	2717.8	2747.9	2757.1
40°	2581.4	2597.3	2614.8	2646.6	2652.5
42.5°	2466.7	2485.2	2506.1	2534.5	2544.6
45°	2351.3	2372.2	2391.4	2414.9	2426.6
47.5°	2226.6	2247.5	2270.9	2297.7	2305.2
50°	2097.7	2122.0	2147.1	2172.2	2185.6
52.5°	1965.5	1994.8	2023.3	2050.0	2062.6
55°	1835.0	1856.8	1891.1	1918.7	1931.2
57.5°	1699.4	1717.8	1748.8	1794.0	1800.7
60°	1561.4	1578.1	1609.9	1646.7	1661.8
62.5°	1409.1	1431.7	1465.2	1512.0	1525.4
65°	1261.0	1282.7	1327.1	1379.8	1401.6
67.5°	1117.9	1125.4	1182.3	1237.6	1272.7
70°	948.9	977.3	1043.4	1111.2	1138.0
72.5°	803.3	831.7	904.5	984.0	1017.5
75°	638.4	677.8	776.5	869.4	902.0
77.5°	493.7	537.2	659.4	753.1	790.7
80°	344.7	412.5	545.6	651.0	692.0
82.5°	216.7	300.4	442.6	553.1	589.1
85°	110.5	204.2	350.6	463.6	504.6
87.5°	29.3	132.2	272.8	380.7	422.6
90°	0.8	76.1	206.7	310.4	348.1
92.5°	0.8	42.7	154.0	246.8	285.3
95°	0.8	20.1	107.1	194.1	224.2
97.5°	0.8	8.4	73.6	146.4	176.6
100°	0.8	4.2	46.9	106.3	132.2
102.5°	1.7	2.5	29.3	76.1	97.1
105°	1.7	2.5	17.6	51.9	69.5
107.5°	1.7	2.5	10.0	35.1	47.7
110°	2.5	2.5	5.9	21.8	31.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2.5	2.5	3.3	14.2	20.9
115°	2.5	2.5	3.3	9.2	13.4
117.5°	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)