

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: P518148

Luminaire Tested: HVL8-4-LD4-3STD-40-UNV-C-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: P518148
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3STD-40-UNV-C-EDD
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11117.0 lumens
Efficiency: N/A
Efficacy: 116.4 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

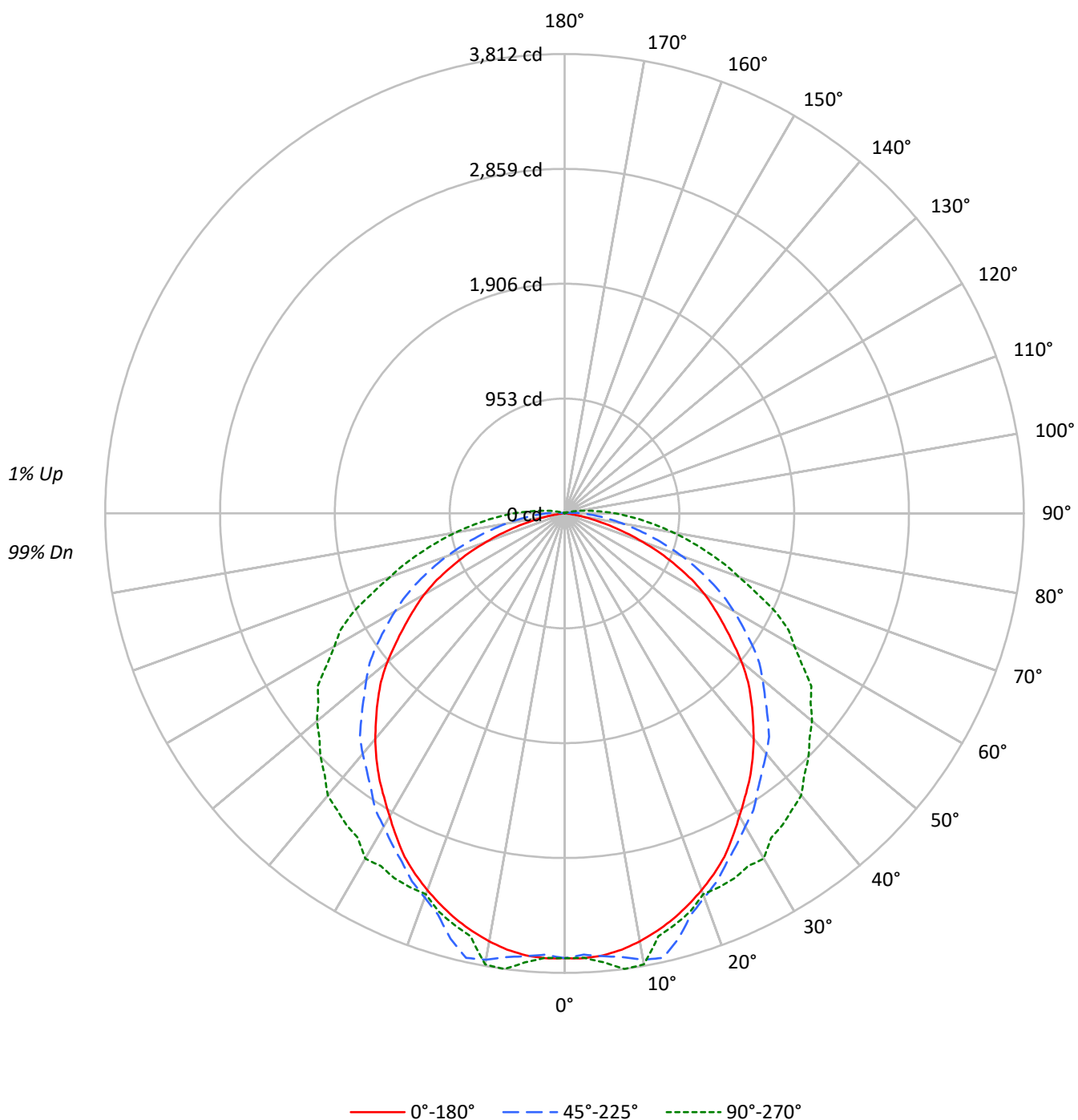
Input Watts (W): 95.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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			99
1	108	103	98	94	105	100	96	92	96	92	89	91	89	86	87	85	83			81
2	98	89	82	76	95	87	80	75	83	78	73	80	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	51	62	56	51	60	54	50			47
5	75	61	52	45	72	60	51	45	58	50	44	56	49	44	54	48	43			41
6	69	55	46	39	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°	14895	14895	14895
5°	14862	14672	14823
10°	14666	14871	14914
15°	14400	14467	13843
20°	14075	13552	13239
25°	13731	12965	13322
30°	13210	12492	13469
35°	12838	12044	13230
40°	12438	11706	13312
45°	12008	11273	13072
50°	11486	10818	12972
55°	10720	10330	12965
60°	10132	9662	12412
65°	8957	8865	12016
70°	7308	7831	10776
75°	5215	6578	9836
80°	2925	5315	8830
85°	1085	4012	7779

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 13072 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	354.7	3.2
10°-20°	1010.0	9.1
20°-30°	1502.8	13.5
30°-40°	1806.4	16.2
40°-50°	1901.3	17.1
50°-60°	1764.2	15.9
60°-70°	1394.9	12.5
70°-80°	852.1	7.7
80°-90°	371.2	3.3
90°-100°	115.6	1.0
100°-110°	26.0	0.2
110°-120°	10.4	0.1
120°-130°	5.9	0.1
130°-140°	1.6	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°	2867.5	25.8
0°-40°	4673.9	42.0
0°-60°	8339.4	75.0
0°-90°	10957.6	98.6
90°-120°	152.0	1.4
90°-150°	159.4	1.4
90°-180°	159.0	1.4
0°-180°	11117.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3690	3690	3690	3690	3690	
5°	3681	3674	3686	3728	3738	349
15°	3484	3618	3653	3532	3535	982
25°	3143	3344	3191	3287	3340	1443
35°	2681	2756	2797	3051	3155	1676
45°	2191	2201	2382	2760	2863	1689
55°	1614	1640	1900	2316	2500	1450
65°	1022	1054	1339	1772	1933	1012
75°	386	512	746	1147	1219	422
85°	35	120	291	564	648	54
90°	1	36	153	358	422	2
95°	1	9	67	196	240	1
105°	1	5	14	38	54	1
115°	1	3	10	17	18	1
125°	1	2	4	11	16	1
135°	2	2	2	4	5	1
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°	3690.2	3690.2	3690.2	3690.2	3690.2
2.5°	3694.7	3685.0	3664.7	3684.2	3689.5
5°	3681.2	3673.7	3686.5	3727.8	3738.3
7.5°	3650.4	3679.0	3712.8	3788.0	3812.0
10°	3604.5	3658.7	3760.2	3824.0	3799.2
12.5°	3548.9	3640.6	3776.7	3651.9	3594.0
15°	3484.3	3618.1	3653.4	3532.4	3534.6
17.5°	3408.3	3599.3	3490.3	3487.3	3465.5
20°	3326.4	3536.1	3391.8	3385.8	3362.5
22.5°	3238.4	3452.7	3304.6	3292.6	3355.7
25°	3143.0	3343.7	3191.1	3286.6	3339.9
27.5°	3023.5	3200.9	3096.4	3231.7	3298.6
30°	2902.4	3053.5	2999.4	3188.1	3306.9
32.5°	2788.9	2899.4	2919.7	3171.5	3191.1
35°	2681.4	2755.8	2797.2	3051.3	3155.0
37.5°	2563.4	2583.7	2693.4	3000.9	3100.9
40°	2443.1	2430.3	2606.2	2918.2	3056.5
42.5°	2313.8	2309.3	2513.8	2876.9	2946.0
45°	2191.3	2201.1	2382.2	2759.6	2862.6
47.5°	2065.8	2078.5	2257.4	2631.1	2758.8
50°	1919.9	1936.5	2146.2	2516.8	2681.4
52.5°	1762.1	1793.6	2037.9	2408.5	2574.7
55°	1614.0	1640.3	1900.4	2316.1	2500.3
57.5°	1478.7	1494.4	1758.3	2199.6	2338.6
60°	1345.6	1349.4	1624.5	2070.3	2203.3
62.5°	1193.0	1199.8	1486.9	1917.7	2095.8
65°	1021.6	1053.9	1338.8	1771.8	1932.7
67.5°	861.5	917.9	1187.7	1638.0	1722.2
70°	690.1	785.6	1039.6	1480.9	1540.3
72.5°	533.0	645.0	887.8	1305.0	1388.4
75°	386.4	511.9	746.5	1147.1	1219.3
77.5°	260.1	387.9	614.2	972.7	1068.2
80°	155.6	283.4	496.1	811.1	918.6
82.5°	79.7	190.2	384.9	680.3	776.5
85°	34.6	120.3	290.9	564.5	648.0
87.5°	9.8	68.4	214.2	456.3	527.0
90°	0.8	36.1	152.6	357.8	421.7
92.5°	0.8	17.3	107.5	270.6	319.5
95°	0.8	9.0	66.9	196.2	239.8
97.5°	0.8	5.3	40.6	139.1	175.9
100°	0.8	4.5	24.1	92.5	125.5
102.5°	0.8	5.3	16.5	58.6	81.9
105°	0.8	5.3	13.5	38.3	54.1
107.5°	1.5	5.3	12.0	28.6	37.6
110°	0.8	4.5	12.8	21.8	29.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.5	3.8	12.0	18.0	21.8
115°	0.8	3.0	10.5	17.3	18.0
117.5°	1.5	2.3	8.3	17.3	18.0
120°	1.5	1.5	6.8	16.5	18.8
122.5°	1.5	1.5	5.3	15.0	18.0
125°	0.8	1.5	4.5	11.3	15.8
127.5°	1.5	1.5	3.8	9.0	12.0
130°	1.5	1.5	3.0	6.8	9.0
132.5°	1.5	1.5	2.3	5.3	6.8
135°	1.5	1.5	1.5	3.8	5.3
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)