

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: P518145

Luminaire Tested: HVL8-4-LD4-3STD-35-UNV-O-EDD-90

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: P518145
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3STD-35-UNV-O-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9967.0 lumens
Efficiency: N/A
Efficacy: 104.4 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

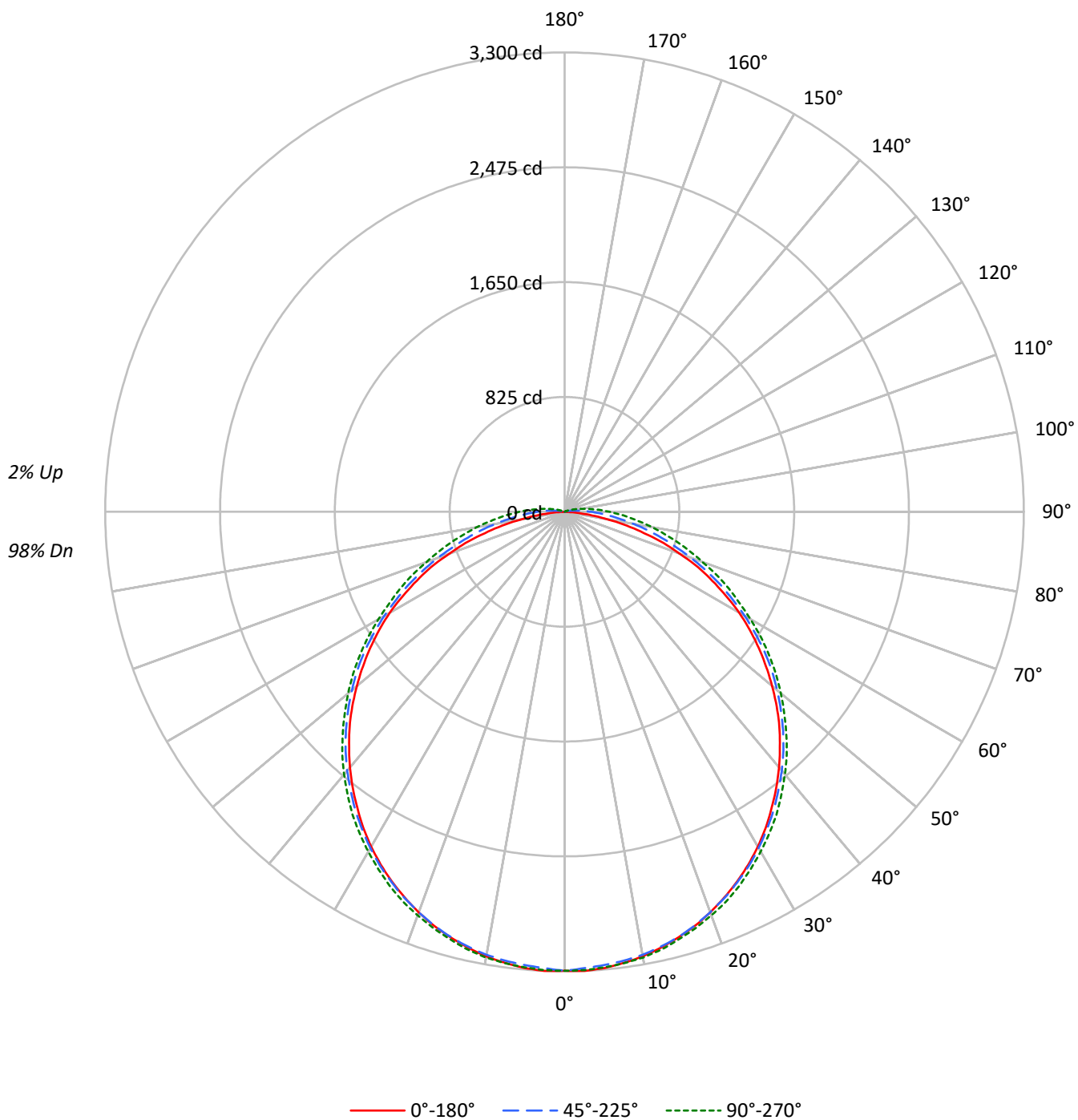
Input Watts (W): 95.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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			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°	13306	13306	13306
5°	13280	13009	13022
10°	13192	12776	12761
15°	13078	12519	12448
20°	12956	12230	12143
25°	12809	11935	11834
30°	12641	11619	11483
35°	12427	11273	11135
40°	12206	10908	10729
45°	11967	10510	10291
50°	11655	10051	9820
55°	11319	9547	9301
60°	10918	8893	8694
65°	10268	8161	8093
70°	9331	7300	7394
75°	8002	6355	6758
80°	6020	5428	6178
85°	3219	4491	5625

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 11967 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	311.9	3.1
10°-20°	894.8	9.0
20°-30°	1357.7	13.6
30°-40°	1641.7	16.5
40°-50°	1713.0	17.2
50°-60°	1566.2	15.7
60°-70°	1220.9	12.2
70°-80°	763.8	7.7
80°-90°	346.9	3.5
90°-100°	116.3	1.2
100°-110°	29.2	0.3
110°-120°	4.6	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°	2564.5	25.7
0°-40°	4206.2	42.2
0°-60°	7485.4	75.1
0°-90°	9817.0	98.5
90°-120°	150.0	1.5
90°-150°	150.0	1.5
90°-180°	150.0	1.5
0°-180°	9967.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3296	3296	3296	3296	3296	
5°	3290	3283	3268	3284	3284	312
15°	3164	3170	3161	3179	3178	893
25°	2932	2934	2938	2962	2967	1351
35°	2596	2607	2618	2644	2655	1625
45°	2184	2203	2221	2243	2254	1683
55°	1704	1724	1756	1782	1794	1523
65°	1171	1191	1232	1281	1302	1159
75°	593	630	721	807	838	632
85°	103	190	326	430	469	130
90°	1	71	192	288	323	4
95°	1	19	100	180	208	1
105°	2	2	16	48	64	2
115°	2	2	3	8	12	1
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°	3296.5	3296.5	3296.5	3296.5	3296.5
2.5°	3300.4	3295.7	3280.9	3295.7	3294.9
5°	3289.5	3283.3	3268.5	3284.0	3284.0
7.5°	3267.7	3265.4	3252.2	3270.1	3270.1
10°	3242.1	3241.3	3230.4	3249.9	3250.6
12.5°	3206.3	3209.4	3199.3	3218.0	3220.3
15°	3164.4	3169.8	3161.3	3179.1	3178.4
17.5°	3118.5	3121.6	3115.4	3135.6	3134.8
20°	3061.8	3065.7	3061.0	3082.0	3084.3
22.5°	2998.9	3004.3	3003.5	3025.3	3031.5
25°	2932.0	2934.4	2937.5	2962.3	2967.0
27.5°	2858.2	2862.1	2867.5	2890.1	2894.7
30°	2777.4	2783.6	2789.8	2813.1	2819.3
32.5°	2691.9	2698.1	2705.9	2736.2	2739.3
35°	2595.5	2607.2	2618.1	2644.5	2655.4
37.5°	2499.2	2513.9	2524.0	2552.0	2560.6
40°	2397.4	2412.1	2428.5	2458.0	2463.4
42.5°	2290.9	2308.0	2327.4	2353.9	2363.2
45°	2183.7	2203.1	2221.0	2242.7	2253.6
47.5°	2067.9	2087.3	2109.1	2133.9	2140.9
50°	1948.2	1970.7	1994.1	2017.4	2029.8
52.5°	1825.4	1852.6	1879.0	1903.9	1915.6
55°	1704.2	1724.4	1756.3	1781.9	1793.6
57.5°	1578.3	1595.4	1624.2	1666.1	1672.3
60°	1450.1	1465.6	1495.2	1529.3	1543.3
62.5°	1308.6	1329.6	1360.7	1404.2	1416.7
65°	1171.1	1191.3	1232.5	1281.4	1301.7
67.5°	1038.2	1045.2	1098.1	1149.3	1182.0
70°	881.2	907.7	969.1	1032.0	1056.9
72.5°	746.0	772.4	840.1	913.9	945.0
75°	592.9	629.5	721.2	807.4	837.7
77.5°	458.5	498.9	612.4	699.4	734.4
80°	320.2	383.1	506.7	604.6	642.7
82.5°	201.3	279.0	411.1	513.7	547.1
85°	102.6	189.6	325.6	430.5	468.6
87.5°	27.2	122.8	253.3	353.6	392.4
90°	0.8	70.7	191.9	288.3	323.3
92.5°	0.8	39.6	143.0	229.2	265.0
95°	0.8	18.7	99.5	180.3	208.3
97.5°	0.8	7.8	68.4	136.0	164.0
100°	0.8	3.9	43.5	98.7	122.8
102.5°	1.6	2.3	27.2	70.7	90.1
105°	1.6	2.3	16.3	48.2	64.5
107.5°	1.6	2.3	9.3	32.6	44.3
110°	2.3	2.3	5.4	20.2	29.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2.3	2.3	3.1	13.2	19.4
115°	2.3	2.3	3.1	8.5	12.4
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)