

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: P518103

Luminaire Tested: HVL8-4-LD4-2STD-50-UNV-C-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: P518103
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2STD-50-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7169.0 lumens
Efficiency: N/A
Efficacy: 109.6 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

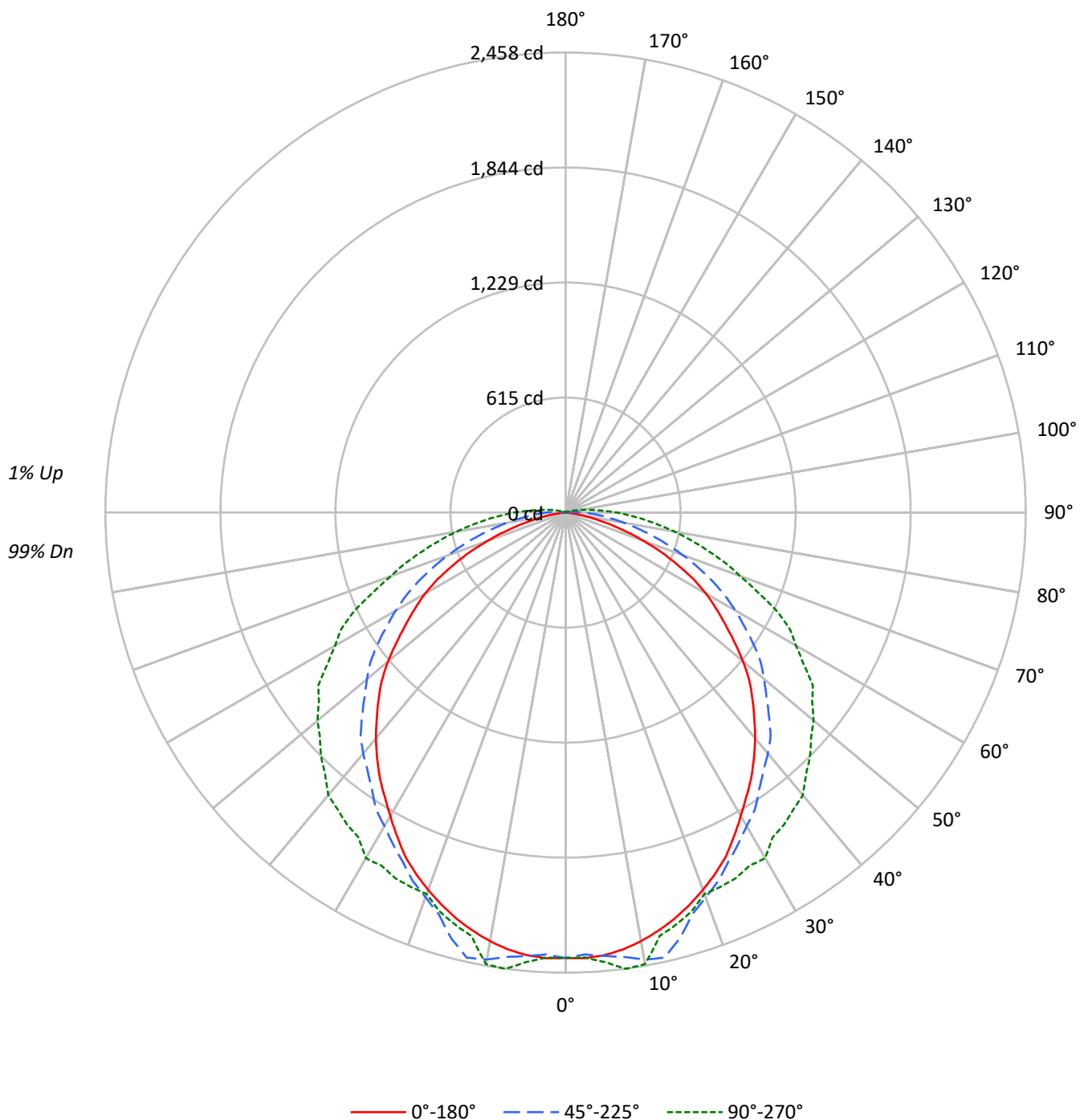
Input Watts (W): 65.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	9606	9606	9606
5°	9584	9462	9559
10°	9458	9590	9618
15°	9286	9330	8927
20°	9077	8739	8537
25°	8855	8361	8591
30°	8519	8056	8686
35°	8279	7767	8532
40°	8021	7549	8585
45°	7744	7270	8430
50°	7407	6976	8366
55°	6913	6662	8361
60°	6533	6231	8004
65°	5776	5717	7749
70°	4712	5050	6949
75°	3363	4242	6343
80°	1886	3427	5695
85°	700	2588	5017

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8430 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.7	3.2
10°-20°	651.3	9.1
20°-30°	969.1	13.5
30°-40°	1164.9	16.2
40°-50°	1226.1	17.1
50°-60°	1137.7	15.9
60°-70°	899.5	12.5
70°-80°	549.5	7.7
80°-90°	239.4	3.3
90°-100°	74.5	1.0
100°-110°	16.7	0.2
110°-120°	6.7	0.1
120°-130°	3.8	0.1
130°-140°	1.0	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°	1849.2	25.8
0°-40°	3014.0	42.0
0°-60°	5377.8	75.0
0°-90°	7066.2	98.6
90°-120°	98.0	1.4
90°-150°	102.8	1.4
90°-180°	103.0	1.4
0°-180°	7169.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2380	2380	2380	2380	2380	
5°	2374	2369	2377	2404	2411	225
15°	2247	2333	2356	2278	2279	633
25°	2027	2156	2058	2119	2154	930
35°	1729	1777	1804	1968	2035	1081
45°	1413	1419	1536	1780	1846	1089
55°	1041	1058	1226	1494	1612	935
65°	659	680	863	1143	1246	652
75°	249	330	481	740	786	272
85°	22	78	188	364	418	35
90°	0	23	98	231	272	1
95°	0	6	43	126	155	0
105°	0	3	9	25	35	1
115°	0	2	7	11	12	1
125°	0	1	3	7	10	1
135°	1	1	1	2	3	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°	2379.7	2379.7	2379.7	2379.7	2379.7
2.5°	2382.6	2376.3	2363.2	2375.8	2379.2
5°	2373.9	2369.1	2377.3	2404.0	2410.7
7.5°	2354.0	2372.4	2394.3	2442.7	2458.3
10°	2324.5	2359.4	2424.8	2466.0	2450.0
12.5°	2288.6	2347.7	2435.5	2355.0	2317.7
15°	2246.9	2333.2	2356.0	2277.9	2279.4
17.5°	2197.9	2321.1	2250.8	2248.8	2234.8
20°	2145.1	2280.3	2187.3	2183.4	2168.4
22.5°	2088.4	2226.5	2131.0	2123.3	2164.0
25°	2026.8	2156.2	2057.8	2119.4	2153.8
27.5°	1949.7	2064.1	1996.8	2084.0	2127.2
30°	1871.7	1969.1	1934.2	2055.9	2132.5
32.5°	1798.5	1869.7	1882.8	2045.2	2057.8
35°	1729.2	1777.2	1803.8	1967.7	2034.6
37.5°	1653.1	1666.1	1736.9	1935.2	1999.7
40°	1575.5	1567.2	1680.7	1881.9	1971.1
42.5°	1492.1	1489.2	1621.1	1855.2	1899.8
45°	1413.1	1419.4	1536.2	1779.6	1846.0
47.5°	1332.1	1340.4	1455.8	1696.7	1779.1
50°	1238.1	1248.8	1384.0	1623.0	1729.2
52.5°	1136.3	1156.7	1314.2	1553.2	1660.3
55°	1040.8	1057.8	1225.5	1493.6	1612.3
57.5°	953.5	963.7	1133.9	1418.4	1508.1
60°	867.7	870.2	1047.6	1335.0	1420.9
62.5°	769.3	773.7	958.9	1236.6	1351.5
65°	658.8	679.6	863.4	1142.6	1246.3
67.5°	555.5	591.9	765.9	1056.3	1110.6
70°	445.0	506.6	670.4	955.0	993.3
72.5°	343.7	415.9	572.5	841.6	895.4
75°	249.2	330.1	481.4	739.8	786.3
77.5°	167.7	250.1	396.1	627.3	688.9
80°	100.3	182.8	319.9	523.1	592.4
82.5°	51.4	122.6	248.2	438.7	500.8
85°	22.3	77.6	187.6	364.1	417.9
87.5°	6.3	44.1	138.2	294.3	339.8
90°	0.5	23.3	98.4	230.7	272.0
92.5°	0.5	11.1	69.3	174.5	206.0
95°	0.5	5.8	43.1	126.5	154.6
97.5°	0.5	3.4	26.2	89.7	113.4
100°	0.5	2.9	15.5	59.6	81.0
102.5°	0.5	3.4	10.7	37.8	52.8
105°	0.5	3.4	8.7	24.7	34.9
107.5°	1.0	3.4	7.8	18.4	24.2
110°	0.5	2.9	8.2	14.1	18.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.0	2.4	7.8	11.6	14.1
115°	0.5	1.9	6.8	11.1	11.6
117.5°	1.0	1.5	5.3	11.1	11.6
120°	1.0	1.0	4.4	10.7	12.1
122.5°	1.0	1.0	3.4	9.7	11.6
125°	0.5	1.0	2.9	7.3	10.2
127.5°	1.0	1.0	2.4	5.8	7.8
130°	1.0	1.0	1.9	4.4	5.8
132.5°	1.0	1.0	1.5	3.4	4.4
135°	1.0	1.0	1.0	2.4	3.4
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)