

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: P518069

Luminaire Tested: HVL8-4-LD4-2HI-40-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: P518069
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2HI-40-UNV-O-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6902.0 lumens
Efficiency: N/A
Efficacy: 80.2 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

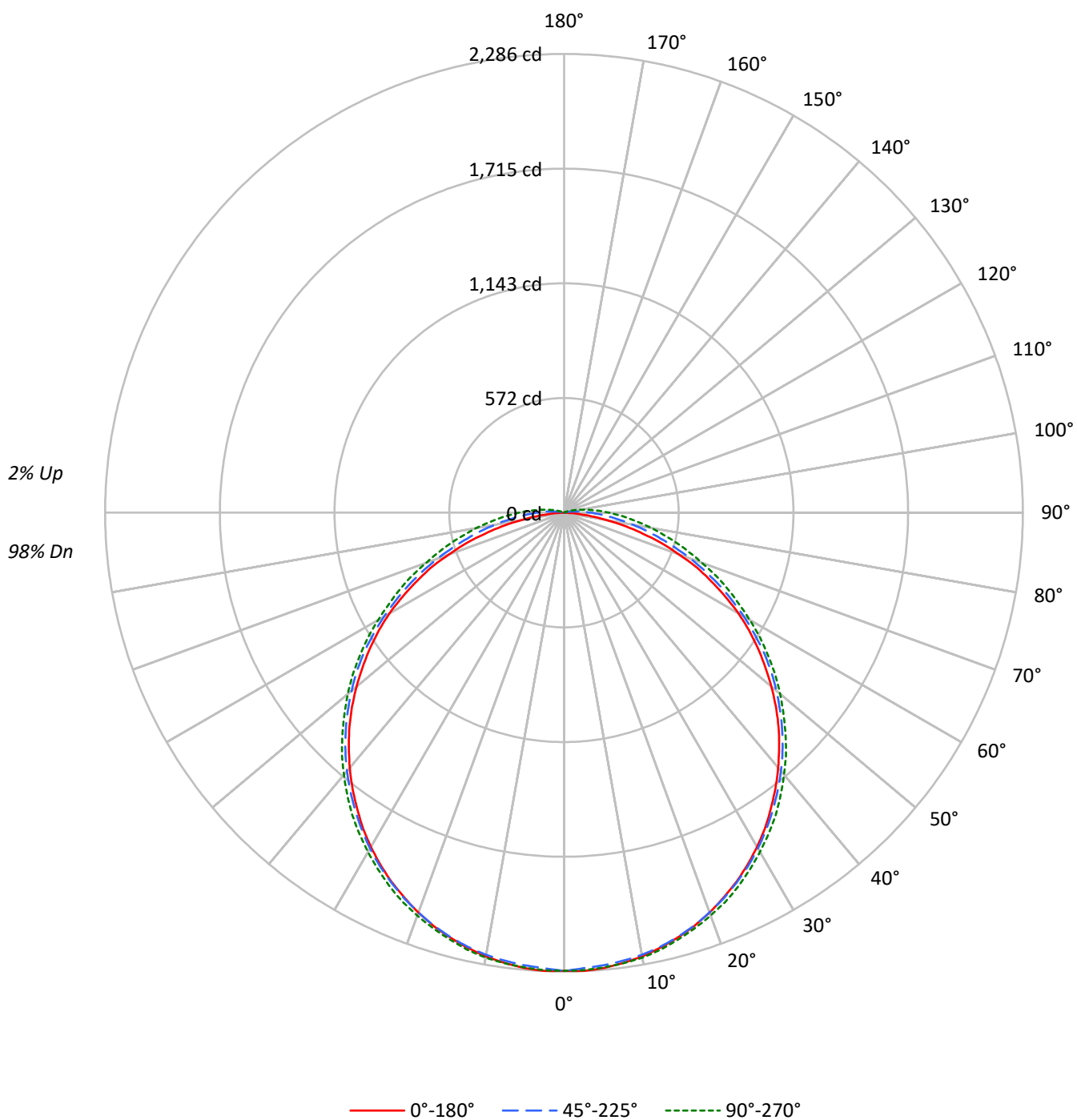
Input Watts (W): 86.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	9214	9214	9214
5°	9196	9008	9018
10°	9135	8847	8837
15°	9056	8669	8620
20°	8971	8469	8409
25°	8871	8264	8195
30°	8754	8046	7952
35°	8606	7806	7711
40°	8452	7554	7430
45°	8287	7278	7127
50°	8071	6960	6800
55°	7838	6611	6440
60°	7561	6158	6020
65°	7110	5652	5604
70°	6462	5055	5120
75°	5542	4401	4680
80°	4168	3759	4278
85°	2227	3110	3895

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 8287 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	216.0	3.1
10°-20°	619.6	9.0
20°-30°	940.2	13.6
30°-40°	1136.9	16.5
40°-50°	1186.2	17.2
50°-60°	1084.6	15.7
60°-70°	845.5	12.2
70°-80°	528.9	7.7
80°-90°	240.2	3.5
90°-100°	80.5	1.2
100°-110°	20.2	0.3
110°-120°	3.2	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°	1775.9	25.7
0°-40°	2912.7	42.2
0°-60°	5183.5	75.1
0°-90°	6798.1	98.5
90°-120°	103.9	1.5
90°-150°	103.9	1.5
90°-180°	104.0	1.5
0°-180°	6902.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2283	2283	2283	2283	2283	
5°	2278	2274	2263	2274	2274	216
15°	2191	2195	2189	2202	2201	619
25°	2030	2032	2034	2051	2055	936
35°	1797	1805	1813	1831	1839	1125
45°	1512	1526	1538	1553	1561	1165
55°	1180	1194	1216	1234	1242	1054
65°	811	825	854	887	901	802
75°	411	436	499	559	580	438
85°	71	131	226	298	324	90
90°	0	49	133	200	224	3
95°	0	13	69	125	144	0
105°	1	2	11	33	45	1
115°	2	2	2	6	9	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°	2282.8	2282.8	2282.8	2282.8	2282.8
2.5°	2285.5	2282.2	2272.0	2282.2	2281.7
5°	2277.9	2273.6	2263.4	2274.2	2274.2
7.5°	2262.9	2261.2	2252.1	2264.5	2264.5
10°	2245.1	2244.6	2237.0	2250.5	2251.0
12.5°	2220.3	2222.5	2215.5	2228.4	2230.0
15°	2191.3	2195.0	2189.1	2201.5	2201.0
17.5°	2159.5	2161.7	2157.4	2171.4	2170.8
20°	2120.2	2122.9	2119.7	2134.2	2135.9
22.5°	2076.7	2080.4	2079.9	2095.0	2099.3
25°	2030.4	2032.0	2034.1	2051.4	2054.6
27.5°	1979.3	1981.9	1985.7	2001.3	2004.5
30°	1923.3	1927.6	1931.9	1948.0	1952.4
32.5°	1864.1	1868.4	1873.8	1894.8	1896.9
35°	1797.4	1805.4	1813.0	1831.3	1838.8
37.5°	1730.6	1740.9	1747.9	1767.2	1773.2
40°	1660.1	1670.4	1681.7	1702.1	1705.9
42.5°	1586.4	1598.3	1611.7	1630.0	1636.5
45°	1512.2	1525.6	1538.0	1553.1	1560.6
47.5°	1432.0	1445.4	1460.5	1477.7	1482.6
50°	1349.1	1364.7	1380.9	1397.0	1405.6
52.5°	1264.1	1282.9	1301.2	1318.4	1326.5
55°	1180.1	1194.1	1216.2	1233.9	1242.0
57.5°	1093.0	1104.8	1124.7	1153.8	1158.1
60°	1004.2	1014.9	1035.4	1059.0	1068.7
62.5°	906.2	920.7	942.3	972.4	981.0
65°	811.0	825.0	853.5	887.4	901.4
67.5°	718.9	723.8	760.4	795.9	818.5
70°	610.2	628.5	671.1	714.6	731.9
72.5°	516.6	534.9	581.7	632.8	654.4
75°	410.6	435.9	499.4	559.1	580.1
77.5°	317.5	345.5	424.0	484.3	508.5
80°	221.7	265.3	350.9	418.7	445.0
82.5°	139.4	193.2	284.7	355.7	378.8
85°	71.0	131.3	225.5	298.1	324.5
87.5°	18.8	85.0	175.4	244.9	271.8
90°	0.5	49.0	132.9	199.6	223.9
92.5°	0.5	27.4	99.0	158.7	183.5
95°	0.5	12.9	68.9	124.8	144.2
97.5°	0.5	5.4	47.4	94.2	113.5
100°	0.5	2.7	30.1	68.3	85.0
102.5°	1.1	1.6	18.8	49.0	62.4
105°	1.1	1.6	11.3	33.4	44.7
107.5°	1.1	1.6	6.5	22.6	30.7
110°	1.6	1.6	3.8	14.0	20.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.6	1.6	2.2	9.1	13.5
115°	1.6	1.6	2.2	5.9	8.6
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)