

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: P518095

Luminaire Tested: HVL8-4-LD4-2STD-35-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: P518095
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2STD-35-UNV-C-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: 6980.0 lumens
Efficiency: N/A
Efficacy: 106.7 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

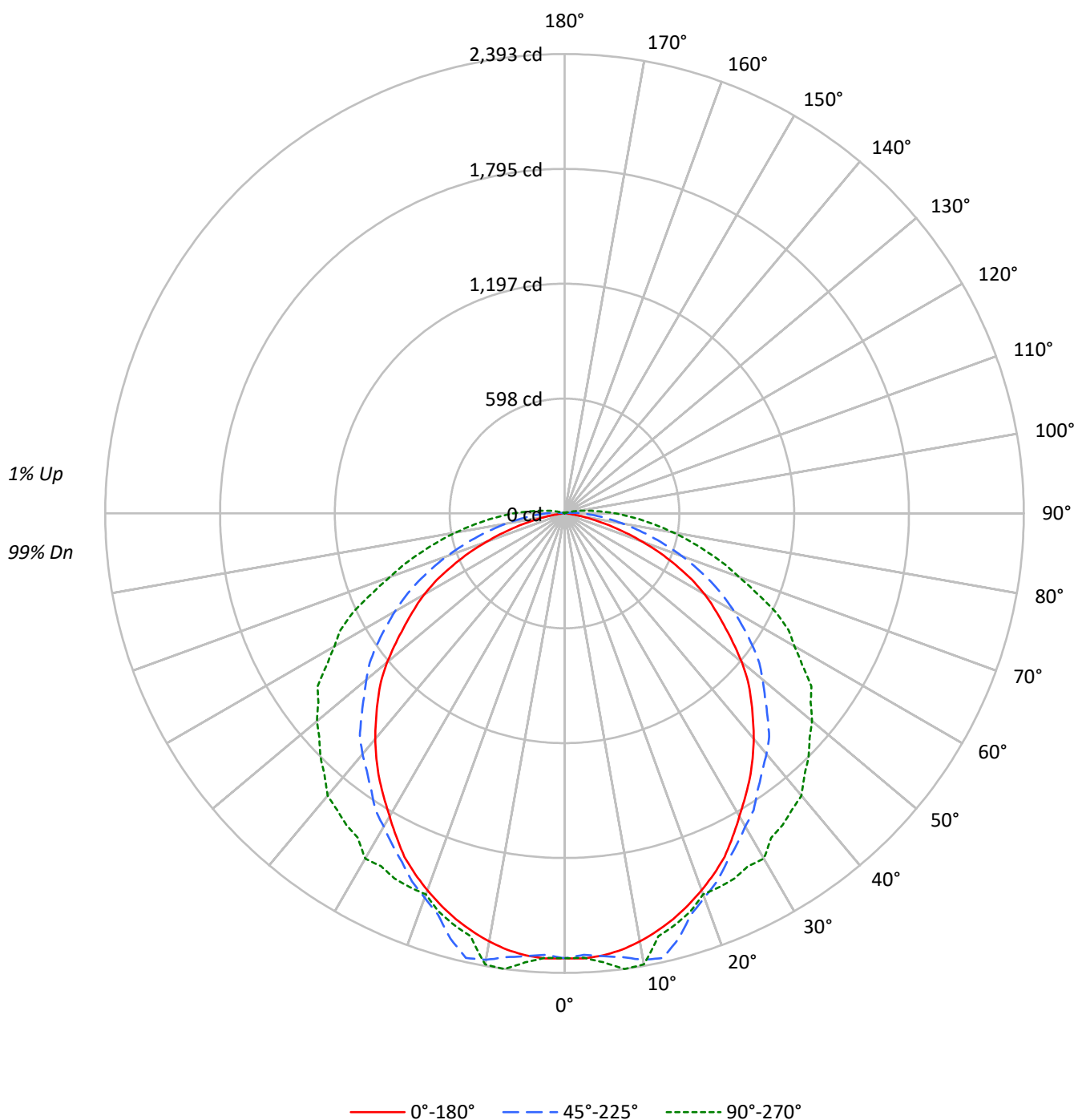
Input Watts (W): 65.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	9352	9352	9352
5°	9331	9212	9307
10°	9209	9337	9364
15°	9041	9084	8692
20°	8837	8509	8312
25°	8621	8140	8364
30°	8294	7843	8457
35°	8061	7562	8307
40°	7810	7350	8358
45°	7539	7078	8207
50°	7212	6792	8145
55°	6731	6486	8140
60°	6362	6067	7793
65°	5623	5566	7545
70°	4588	4917	6766
75°	3274	4130	6176
80°	1837	3337	5545
85°	681	2520	4885

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8207 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	222.7	3.2
10°-20°	634.2	9.1
20°-30°	943.6	13.5
30°-40°	1134.2	16.2
40°-50°	1193.8	17.1
50°-60°	1107.7	15.9
60°-70°	875.8	12.5
70°-80°	535.0	7.7
80°-90°	233.1	3.3
90°-100°	72.6	1.0
100°-110°	16.3	0.2
110°-120°	6.6	0.1
120°-130°	3.7	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°	1800.4	25.8
0°-40°	2934.6	42.0
0°-60°	5236.0	75.0
0°-90°	6879.9	98.6
90°-120°	95.4	1.4
90°-150°	100.1	1.4
90°-180°	100.0	1.4
0°-180°	6980.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2317	2317	2317	2317	2317	
5°	2311	2307	2315	2341	2347	219
15°	2188	2272	2294	2218	2219	616
25°	1973	2099	2004	2064	2097	906
35°	1684	1730	1756	1916	1981	1052
45°	1376	1382	1496	1733	1797	1061
55°	1013	1030	1193	1454	1570	911
65°	641	662	841	1112	1214	635
75°	243	321	469	720	766	265
85°	22	76	183	354	407	34
90°	0	23	96	225	265	1
95°	0	6	42	123	151	0
105°	0	3	8	24	34	1
115°	0	2	7	11	11	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°	2317.0	2317.0	2317.0	2317.0	2317.0
2.5°	2319.8	2313.7	2300.9	2313.2	2316.5
5°	2311.3	2306.6	2314.6	2340.6	2347.2
7.5°	2292.0	2309.9	2331.1	2378.3	2393.4
10°	2263.2	2297.2	2360.9	2401.0	2385.4
12.5°	2228.2	2285.8	2371.3	2292.9	2256.6
15°	2187.7	2271.7	2293.9	2217.9	2219.3
17.5°	2140.0	2259.9	2191.4	2189.5	2175.9
20°	2088.5	2220.2	2129.6	2125.8	2111.2
22.5°	2033.3	2167.8	2074.9	2067.3	2106.9
25°	1973.4	2099.4	2003.6	2063.5	2097.0
27.5°	1898.3	2009.7	1944.1	2029.1	2071.1
30°	1822.3	1917.2	1883.2	2001.7	2076.3
32.5°	1751.1	1820.5	1833.2	1991.3	2003.6
35°	1683.6	1730.3	1756.3	1915.8	1980.9
37.5°	1609.5	1622.2	1691.1	1884.2	1946.9
40°	1534.0	1525.9	1636.4	1832.3	1919.1
42.5°	1452.8	1449.9	1578.3	1806.3	1849.7
45°	1375.8	1382.0	1495.7	1732.7	1797.3
47.5°	1297.0	1305.0	1417.4	1652.0	1732.2
50°	1205.5	1215.8	1347.5	1580.2	1683.6
52.5°	1106.3	1126.2	1279.6	1512.2	1616.6
55°	1013.4	1029.9	1193.2	1454.2	1569.8
57.5°	928.4	938.3	1104.0	1381.0	1468.3
60°	844.9	847.2	1020.0	1299.9	1383.4
62.5°	749.0	753.3	933.6	1204.0	1315.9
65°	641.4	661.7	840.6	1112.5	1213.5
67.5°	540.9	576.3	745.7	1028.5	1081.3
70°	433.3	493.2	652.8	929.8	967.1
72.5°	334.6	405.0	557.4	819.4	871.8
75°	242.6	321.4	468.7	720.3	765.6
77.5°	163.3	243.5	385.6	610.8	670.7
80°	97.7	177.9	311.5	509.3	576.8
82.5°	50.0	119.4	241.7	427.1	487.6
85°	21.7	75.5	182.7	354.5	406.9
87.5°	6.1	43.0	134.5	286.5	330.9
90°	0.5	22.7	95.8	224.7	264.8
92.5°	0.5	10.9	67.5	169.9	200.6
95°	0.5	5.7	42.0	123.2	150.6
97.5°	0.5	3.3	25.5	87.3	110.4
100°	0.5	2.8	15.1	58.1	78.8
102.5°	0.5	3.3	10.4	36.8	51.4
105°	0.5	3.3	8.5	24.1	34.0
107.5°	0.9	3.3	7.6	17.9	23.6
110°	0.5	2.8	8.0	13.7	18.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.9	2.4	7.6	11.3	13.7
115°	0.5	1.9	6.6	10.9	11.3
117.5°	0.9	1.4	5.2	10.9	11.3
120°	0.9	0.9	4.2	10.4	11.8
122.5°	0.9	0.9	3.3	9.4	11.3
125°	0.5	0.9	2.8	7.1	9.9
127.5°	0.9	0.9	2.4	5.7	7.6
130°	0.9	0.9	1.9	4.2	5.7
132.5°	0.9	0.9	1.4	3.3	4.2
135°	0.9	0.9	0.9	2.4	3.3
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)