

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: P518096

Luminaire Tested: HVL8-4-LD4-2STD-35-UNV-C-EDD

Issue Date: 4/27/2021

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

Test Information

Test Method: LM-79-2019
Report Number: P518096
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
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 80 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

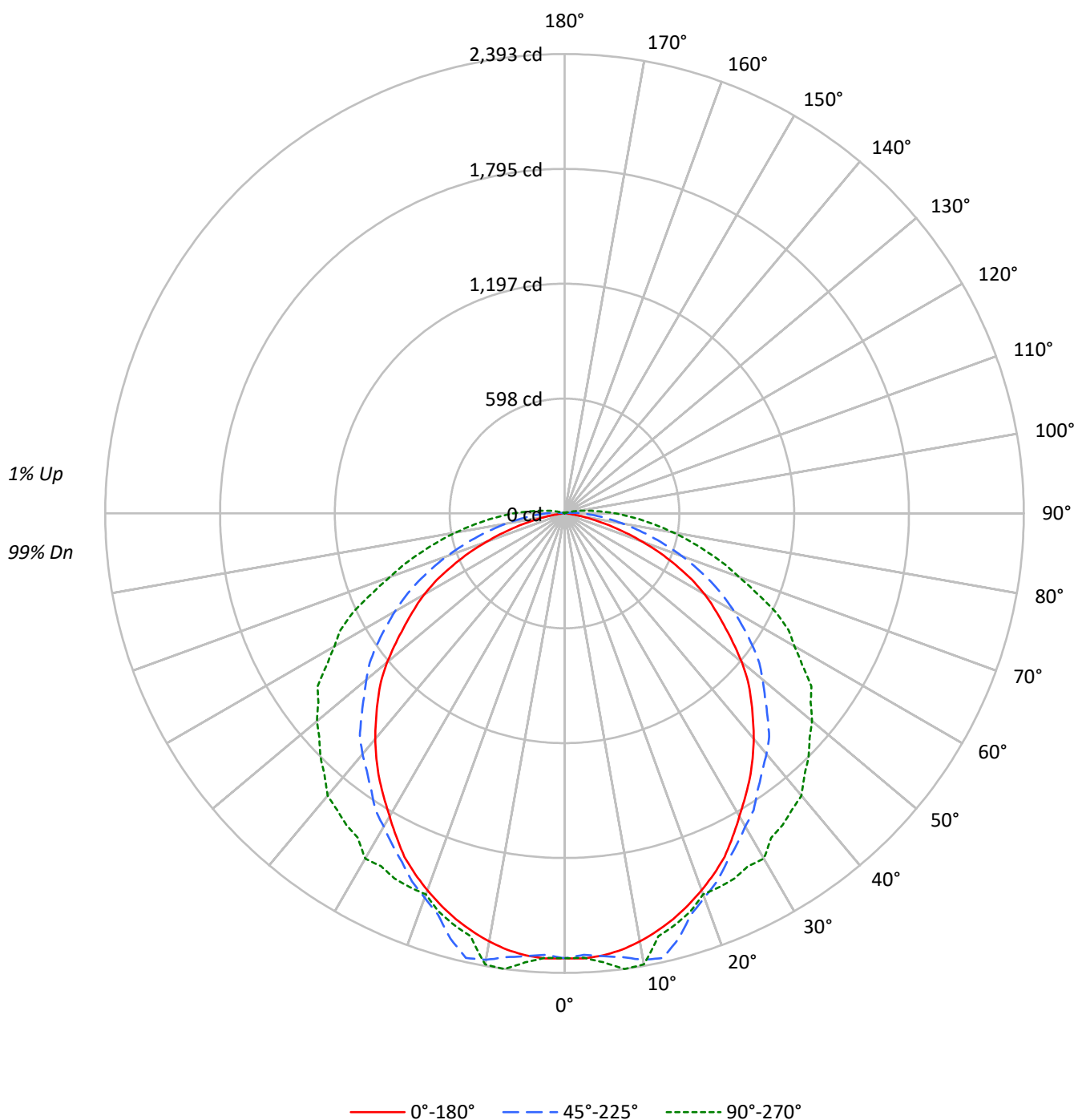
Input Watts (W): 65.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

TEST NUMBER: P518096

CATALOG NUMBER: HVL8-4-LD4-2STD-35-UNV-C-EDD

Luminous Intensity Polar Plot



TEST NUMBER: P518096

CATALOG NUMBER: HVL8-4-LD4-2STD-35-UNV-C-EDD

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

TEST NUMBER: P518096

CATALOG NUMBER: HVL8-4-LD4-2STD-35-UNV-C-EDD

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

TEST NUMBER: P518096

CATALOG NUMBER: HVL8-4-LD4-2STD-35-UNV-C-EDD

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

TEST NUMBER: P518096

CATALOG NUMBER: HVL8-4-LD4-2STD-35-UNV-C-EDD

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)