

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: P518081

Luminaire Tested: HVL8-4-LD4-2LO-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: P518081
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2LO-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: 4105.0 lumens
Efficiency: N/A
Efficacy: 89.0 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

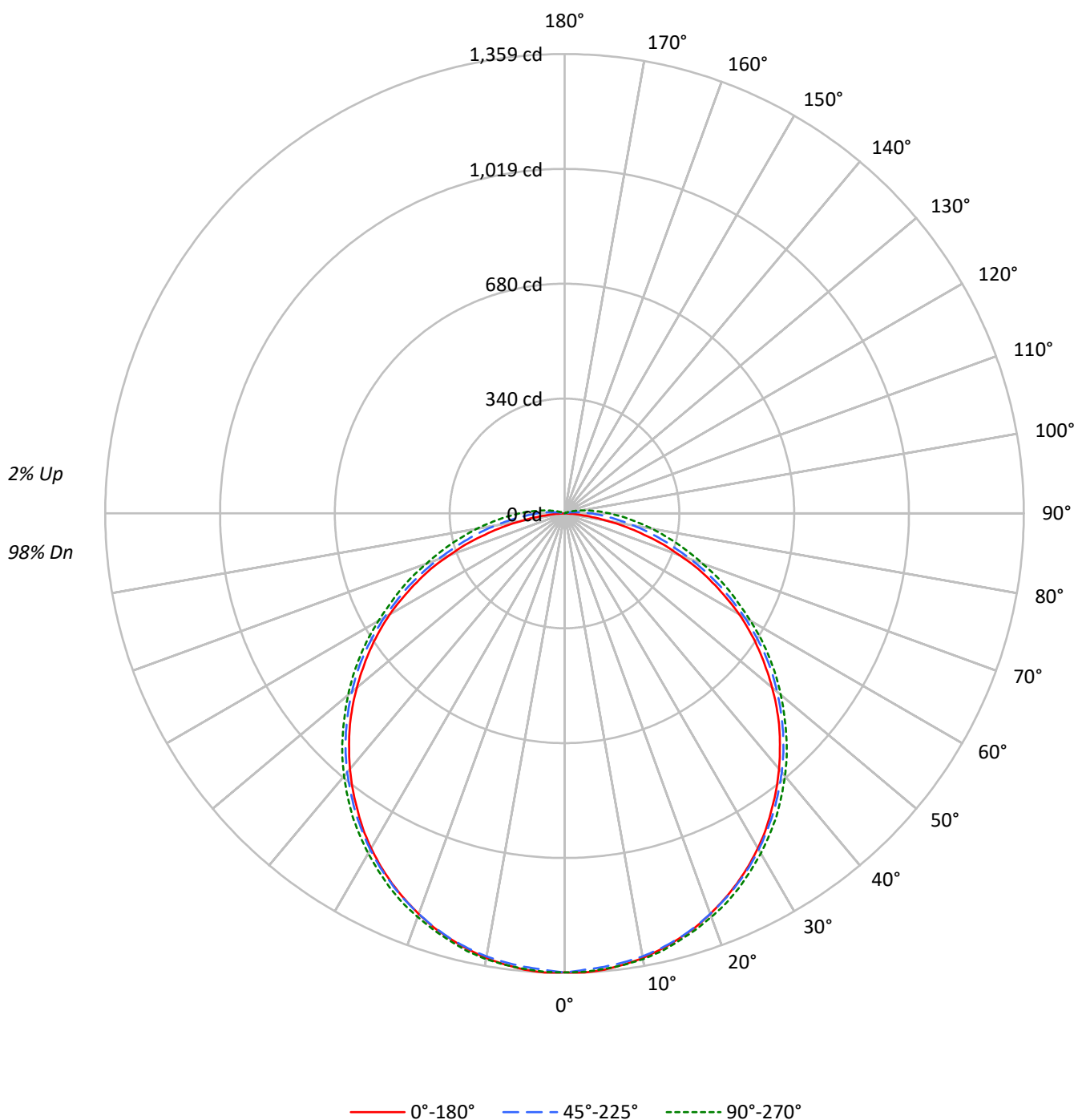
Input Watts (W): 46.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	5480	5480	5480
5°	5470	5358	5363
10°	5433	5262	5256
15°	5386	5156	5127
20°	5336	5037	5001
25°	5276	4915	4874
30°	5206	4785	4729
35°	5118	4643	4586
40°	5027	4493	4419
45°	4929	4329	4239
50°	4800	4140	4045
55°	4662	3932	3831
60°	4497	3663	3580
65°	4229	3361	3333
70°	3843	3006	3045
75°	3296	2617	2783
80°	2480	2236	2545
85°	1324	1850	2317

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4929 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	128.5	3.1
10°-20°	368.5	9.0
20°-30°	559.2	13.6
30°-40°	676.2	16.5
40°-50°	705.5	17.2
50°-60°	645.0	15.7
60°-70°	502.8	12.2
70°-80°	314.6	7.7
80°-90°	142.9	3.5
90°-100°	47.9	1.2
100°-110°	12.0	0.3
110°-120°	1.9	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°	1056.2	25.7
0°-40°	1732.4	42.2
0°-60°	3082.9	75.1
0°-90°	4043.2	98.5
90°-120°	61.8	1.5
90°-150°	61.8	1.5
90°-180°	62.0	1.5
0°-180°	4105.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1358	1358	1358	1358	1358	
5°	1355	1352	1346	1353	1353	129
15°	1303	1306	1302	1309	1309	368
25°	1208	1208	1210	1220	1222	556
35°	1069	1074	1078	1089	1094	669
45°	899	907	915	924	928	693
55°	702	710	723	734	739	627
65°	482	491	508	528	536	477
75°	244	259	297	332	345	260
85°	42	78	134	177	193	53
90°	0	29	79	119	133	2
95°	0	8	41	74	86	0
105°	1	1	7	20	27	1
115°	1	1	1	4	5	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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CATALOG NUMBER: HVL8-4-LD4-2LO-35-UNV-O-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1357.7	1357.7	1357.7	1357.7	1357.7
2.5°	1359.3	1357.4	1351.3	1357.4	1357.0
5°	1354.8	1352.2	1346.2	1352.6	1352.6
7.5°	1345.8	1344.9	1339.4	1346.8	1346.8
10°	1335.3	1335.0	1330.5	1338.5	1338.8
12.5°	1320.6	1321.8	1317.7	1325.4	1326.3
15°	1303.3	1305.5	1302.0	1309.4	1309.0
17.5°	1284.4	1285.7	1283.1	1291.4	1291.1
20°	1261.0	1262.6	1260.7	1269.4	1270.3
22.5°	1235.1	1237.3	1237.0	1246.0	1248.5
25°	1207.6	1208.5	1209.8	1220.1	1222.0
27.5°	1177.2	1178.8	1181.0	1190.3	1192.2
30°	1143.9	1146.4	1149.0	1158.6	1161.2
32.5°	1108.7	1111.2	1114.4	1126.9	1128.2
35°	1069.0	1073.8	1078.3	1089.2	1093.6
37.5°	1029.3	1035.4	1039.5	1051.1	1054.6
40°	987.4	993.5	1000.2	1012.3	1014.6
42.5°	943.5	950.6	958.6	969.5	973.3
45°	899.4	907.4	914.7	923.7	928.2
47.5°	851.7	859.7	868.6	878.9	881.8
50°	802.4	811.7	821.3	830.9	836.0
52.5°	751.8	763.0	773.9	784.1	788.9
55°	701.9	710.2	723.3	733.9	738.7
57.5°	650.0	657.1	668.9	686.2	688.8
60°	597.2	603.6	615.8	629.9	635.6
62.5°	539.0	547.6	560.4	578.3	583.5
65°	482.3	490.6	507.6	527.8	536.1
67.5°	427.6	430.5	452.2	473.4	486.8
70°	362.9	373.8	399.1	425.0	435.3
72.5°	307.3	318.1	346.0	376.4	389.2
75°	244.2	259.2	297.0	332.5	345.0
77.5°	188.8	205.5	252.2	288.1	302.5
80°	131.9	157.8	208.7	249.0	264.7
82.5°	82.9	114.9	169.3	211.6	225.3
85°	42.2	78.1	134.1	177.3	193.0
87.5°	11.2	50.6	104.3	145.6	161.6
90°	0.3	29.1	79.1	118.7	133.1
92.5°	0.3	16.3	58.9	94.4	109.1
95°	0.3	7.7	41.0	74.3	85.8
97.5°	0.3	3.2	28.2	56.0	67.5
100°	0.3	1.6	17.9	40.6	50.6
102.5°	0.6	1.0	11.2	29.1	37.1
105°	0.6	1.0	6.7	19.8	26.6
107.5°	0.6	1.0	3.8	13.4	18.2
110°	1.0	1.0	2.2	8.3	12.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.0	1.0	1.3	5.4	8.0
115°	1.0	1.0	1.3	3.5	5.1
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)