

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: P517987

Luminaire Tested: HVL8-2-LD4-3LO-40-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: P517987
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-3LO-40-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3626.0 lumens
Efficiency: N/A
Efficacy: 107.6 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 2' x H: 0.17')
CIE Type: Direct

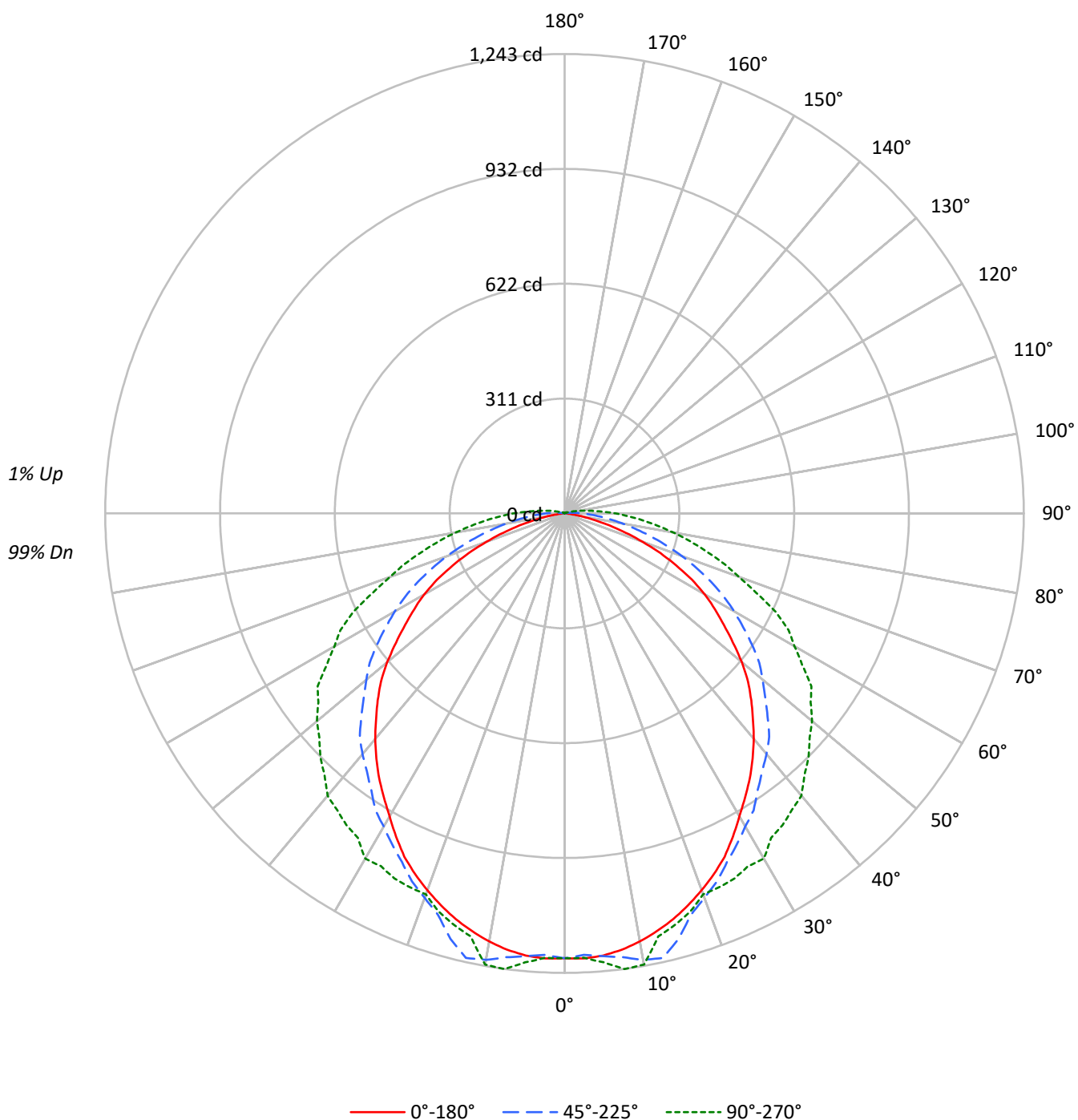
Input Watts (W): 33.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	9717	9717	9717
5°	9660	9547	9669
10°	9498	9652	9729
15°	9291	9367	9031
20°	9047	8753	8636
25°	8789	8353	8691
30°	8420	8027	8786
35°	8144	7717	8631
40°	7849	7479	8684
45°	7532	7179	8528
50°	7154	6863	8463
55°	6621	6526	8458
60°	6192	6075	8097
65°	5400	5541	7839
70°	4323	4858	7029
75°	2998	4040	6417
80°	1604	3219	5760
85°	536	2379	5075

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8528 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	115.7	3.2
10°-20°	329.4	9.1
20°-30°	490.2	13.5
30°-40°	589.2	16.2
40°-50°	620.1	17.1
50°-60°	575.4	15.9
60°-70°	455.0	12.5
70°-80°	277.9	7.7
80°-90°	121.1	3.3
90°-100°	37.7	1.0
100°-110°	8.5	0.2
110°-120°	3.4	0.1
120°-130°	1.9	0.1
130°-140°	0.5	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°	935.3	25.8
0°-40°	1524.5	42.0
0°-60°	2720.0	75.0
0°-90°	3574.0	98.6
90°-120°	49.5	1.4
90°-150°	52.0	1.4
90°-180°	52.0	1.4
0°-180°	3626.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1204	1204	1204	1204	1204	
5°	1201	1198	1202	1216	1219	114
15°	1136	1180	1192	1152	1153	320
25°	1025	1091	1041	1072	1089	471
35°	875	899	912	995	1029	547
45°	715	718	777	900	934	551
55°	526	535	620	755	816	473
65°	333	344	437	578	630	330
75°	126	167	244	374	398	138
85°	11	39	95	184	211	17
90°	0	12	50	117	138	1
95°	0	3	22	64	78	0
105°	0	2	4	12	18	0
115°	0	1	3	6	6	0
125°	0	0	2	4	5	0
135°	0	0	0	1	2	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°	1203.6	1203.6	1203.6	1203.6	1203.6
2.5°	1205.1	1201.9	1195.3	1201.7	1203.4
5°	1200.7	1198.2	1202.4	1215.9	1219.3
7.5°	1190.6	1200.0	1211.0	1235.5	1243.4
10°	1175.7	1193.3	1226.4	1247.3	1239.2
12.5°	1157.5	1187.5	1231.8	1191.1	1172.3
15°	1136.5	1180.1	1191.6	1152.1	1152.9
17.5°	1111.7	1174.0	1138.4	1137.4	1130.3
20°	1085.0	1153.4	1106.3	1104.3	1096.7
22.5°	1056.3	1126.2	1077.9	1073.9	1094.5
25°	1025.1	1090.6	1040.8	1072.0	1089.4
27.5°	986.2	1044.0	1009.9	1054.1	1075.9
30°	946.7	996.0	978.3	1039.8	1078.6
32.5°	909.7	945.7	952.3	1034.5	1040.8
35°	874.6	898.9	912.3	995.2	1029.1
37.5°	836.1	842.7	878.5	978.8	1011.4
40°	796.9	792.7	850.1	951.8	996.9
42.5°	754.7	753.2	819.9	938.3	960.9
45°	714.7	717.9	777.0	900.1	933.7
47.5°	673.8	677.9	736.3	858.2	899.8
50°	626.2	631.6	700.0	820.9	874.6
52.5°	574.7	585.0	664.7	785.6	839.8
55°	526.4	535.0	619.8	755.4	815.5
57.5°	482.3	487.4	573.5	717.4	762.8
60°	438.9	440.1	529.9	675.3	718.7
62.5°	389.1	391.3	485.0	625.5	683.6
65°	333.2	343.8	436.7	577.9	630.4
67.5°	281.0	299.4	387.4	534.3	561.7
70°	225.1	256.2	339.1	483.0	502.4
72.5°	173.8	210.4	289.6	425.6	452.9
75°	126.0	167.0	243.5	374.2	397.7
77.5°	84.8	126.5	200.3	317.3	348.4
80°	50.8	92.4	161.8	264.6	299.6
82.5°	26.0	62.0	125.5	221.9	253.3
85°	11.3	39.2	94.9	184.1	211.4
87.5°	3.2	22.3	69.9	148.8	171.9
90°	0.2	11.8	49.8	116.7	137.6
92.5°	0.2	5.6	35.1	88.3	104.2
95°	0.2	2.9	21.8	64.0	78.2
97.5°	0.2	1.7	13.2	45.4	57.4
100°	0.2	1.5	7.8	30.2	40.9
102.5°	0.2	1.7	5.4	19.1	26.7
105°	0.2	1.7	4.4	12.5	17.7
107.5°	0.5	1.7	3.9	9.3	12.3
110°	0.2	1.5	4.2	7.1	9.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.2	3.9	5.9	7.1
115°	0.2	1.0	3.4	5.6	5.9
117.5°	0.5	0.7	2.7	5.6	5.9
120°	0.5	0.5	2.2	5.4	6.1
122.5°	0.5	0.5	1.7	4.9	5.9
125°	0.2	0.5	1.5	3.7	5.1
127.5°	0.5	0.5	1.2	2.9	3.9
130°	0.5	0.5	1.0	2.2	2.9
132.5°	0.5	0.5	0.7	1.7	2.2
135°	0.5	0.5	0.5	1.2	1.7
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)