

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: P517563

Luminaire Tested: HVL12-4-LD4-3STD-30-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: P517563
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3STD-30-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10949.0 lumens
Efficiency: N/A
Efficacy: 111.6 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 4' x H: 0.17')
CIE Type: Direct

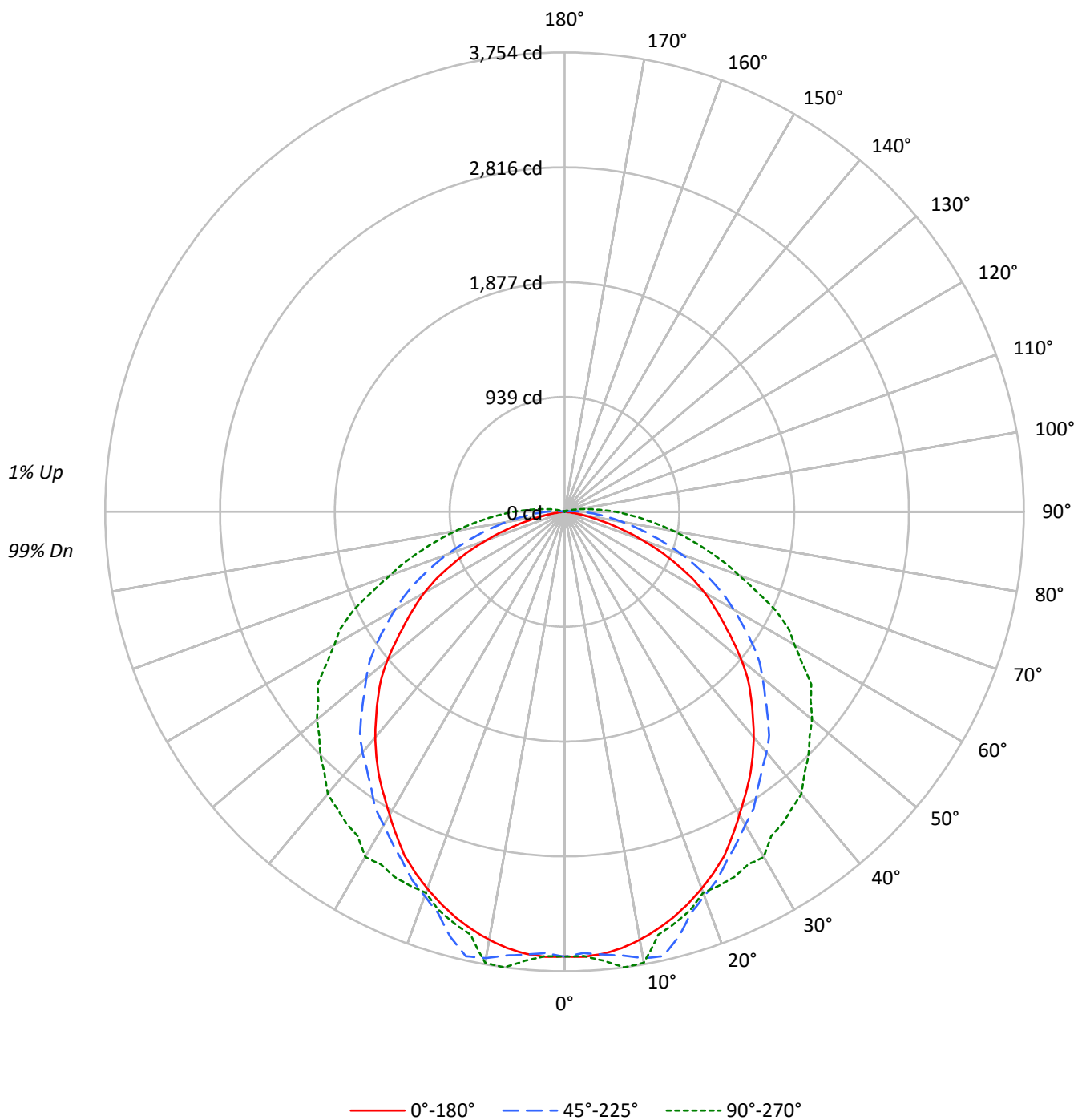
Input Watts (W): 98.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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			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°	9780	9780	9780
5°	9758	9683	9803
10°	9630	9863	9932
15°	9455	9644	9284
20°	9242	9079	8941
25°	9016	8732	9063
30°	8674	8460	9232
35°	8430	8204	9141
40°	8167	8025	9277
45°	7885	7782	9196
50°	7542	7527	9224
55°	7039	7255	9331
60°	6653	6860	9062
65°	5881	6380	8928
70°	4798	5734	8186
75°	3424	4932	7697
80°	1922	4125	7207
85°	713	3296	6782

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 9331 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	349.3	3.2
10°-20°	994.8	9.1
20°-30°	1480.1	13.5
30°-40°	1779.1	16.2
40°-50°	1872.6	17.1
50°-60°	1737.5	15.9
60°-70°	1373.8	12.5
70°-80°	839.2	7.7
80°-90°	365.6	3.3
90°-100°	113.8	1.0
100°-110°	25.6	0.2
110°-120°	10.3	0.1
120°-130°	5.8	0.1
130°-140°	1.6	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°	2824.2	25.8
0°-40°	4603.2	42.0
0°-60°	8213.4	75.0
0°-90°	10792.0	98.6
90°-120°	149.7	1.4
90°-150°	157.0	1.4
90°-180°	157.0	1.4
0°-180°	10949.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3634	3634	3634	3634	3634	
5°	3626	3618	3631	3672	3682	344
15°	3432	3563	3598	3479	3481	967
25°	3096	3293	3143	3237	3290	1421
35°	2641	2714	2755	3005	3107	1651
45°	2158	2168	2346	2718	2819	1664
55°	1590	1616	1872	2281	2462	1428
65°	1006	1038	1319	1745	1904	997
75°	380	504	735	1130	1201	415
85°	34	118	286	556	638	53
90°	1	36	150	352	415	2
95°	1	9	66	193	236	1
105°	1	5	13	38	53	1
115°	1	3	10	17	18	1
125°	1	2	4	11	16	1
135°	2	2	2	4	5	1
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°	3634.5	3634.5	3634.5	3634.5	3634.5
2.5°	3638.9	3629.3	3609.3	3628.5	3633.7
5°	3625.6	3618.2	3630.8	3671.5	3681.9
7.5°	3595.2	3623.4	3656.7	3730.7	3754.4
10°	3550.1	3603.4	3703.3	3766.3	3741.8
12.5°	3495.3	3585.6	3719.6	3596.7	3539.7
15°	3431.6	3563.4	3598.2	3479.0	3481.2
17.5°	3356.8	3544.9	3437.5	3434.6	3413.1
20°	3276.1	3482.7	3340.5	3334.6	3311.7
22.5°	3189.5	3400.5	3254.7	3242.8	3305.0
25°	3095.5	3293.2	3142.9	3236.9	3289.5
27.5°	2977.8	3152.5	3049.6	3182.8	3248.7
30°	2858.6	3007.4	2954.1	3139.9	3256.9
32.5°	2746.8	2855.6	2875.6	3123.6	3142.9
35°	2640.9	2714.2	2754.9	3005.2	3107.3
37.5°	2524.7	2544.6	2652.7	2955.6	3054.0
40°	2406.2	2393.6	2566.9	2874.1	3010.3
42.5°	2278.9	2274.4	2475.8	2833.4	2901.5
45°	2158.2	2167.8	2346.2	2717.9	2819.3
47.5°	2034.5	2047.1	2223.3	2591.3	2717.2
50°	1890.9	1907.2	2113.8	2478.8	2640.9
52.5°	1735.4	1766.5	2007.1	2372.1	2535.8
55°	1589.6	1615.5	1871.7	2281.1	2462.5
57.5°	1456.3	1471.9	1731.7	2166.3	2303.3
60°	1325.3	1329.0	1599.9	2039.0	2170.0
62.5°	1175.0	1181.6	1464.5	1888.7	2064.1
65°	1006.2	1038.0	1318.6	1745.1	1903.5
67.5°	848.5	904.0	1169.8	1613.3	1696.2
70°	679.7	773.7	1023.9	1458.5	1517.0
72.5°	524.9	635.2	874.4	1285.3	1367.5
75°	380.5	504.2	735.2	1129.8	1200.9
77.5°	256.2	382.0	604.9	958.0	1052.1
80°	153.3	279.1	488.6	798.9	904.7
82.5°	78.5	187.3	379.1	670.0	764.8
85°	34.1	118.5	286.5	556.0	638.2
87.5°	9.6	67.4	211.0	449.4	519.0
90°	0.7	35.5	150.3	352.4	415.3
92.5°	0.7	17.0	105.9	266.5	314.7
95°	0.7	8.9	65.9	193.2	236.2
97.5°	0.7	5.2	40.0	137.0	173.2
100°	0.7	4.4	23.7	91.1	123.6
102.5°	0.7	5.2	16.3	57.7	80.7
105°	0.7	5.2	13.3	37.8	53.3
107.5°	1.5	5.2	11.8	28.1	37.0
110°	0.7	4.4	12.6	21.5	28.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.5	3.7	11.8	17.8	21.5
115°	0.7	3.0	10.4	17.0	17.8
117.5°	1.5	2.2	8.1	17.0	17.8
120°	1.5	1.5	6.7	16.3	18.5
122.5°	1.5	1.5	5.2	14.8	17.8
125°	0.7	1.5	4.4	11.1	15.5
127.5°	1.5	1.5	3.7	8.9	11.8
130°	1.5	1.5	3.0	6.7	8.9
132.5°	1.5	1.5	2.2	5.2	6.7
135°	1.5	1.5	1.5	3.7	5.2
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)