

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: P518153

Luminaire Tested: HVL8-4-LD4-3STD-50-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: P518153
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3STD-50-UNV-O-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10237.0 lumens
Efficiency: N/A
Efficacy: 107.2 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

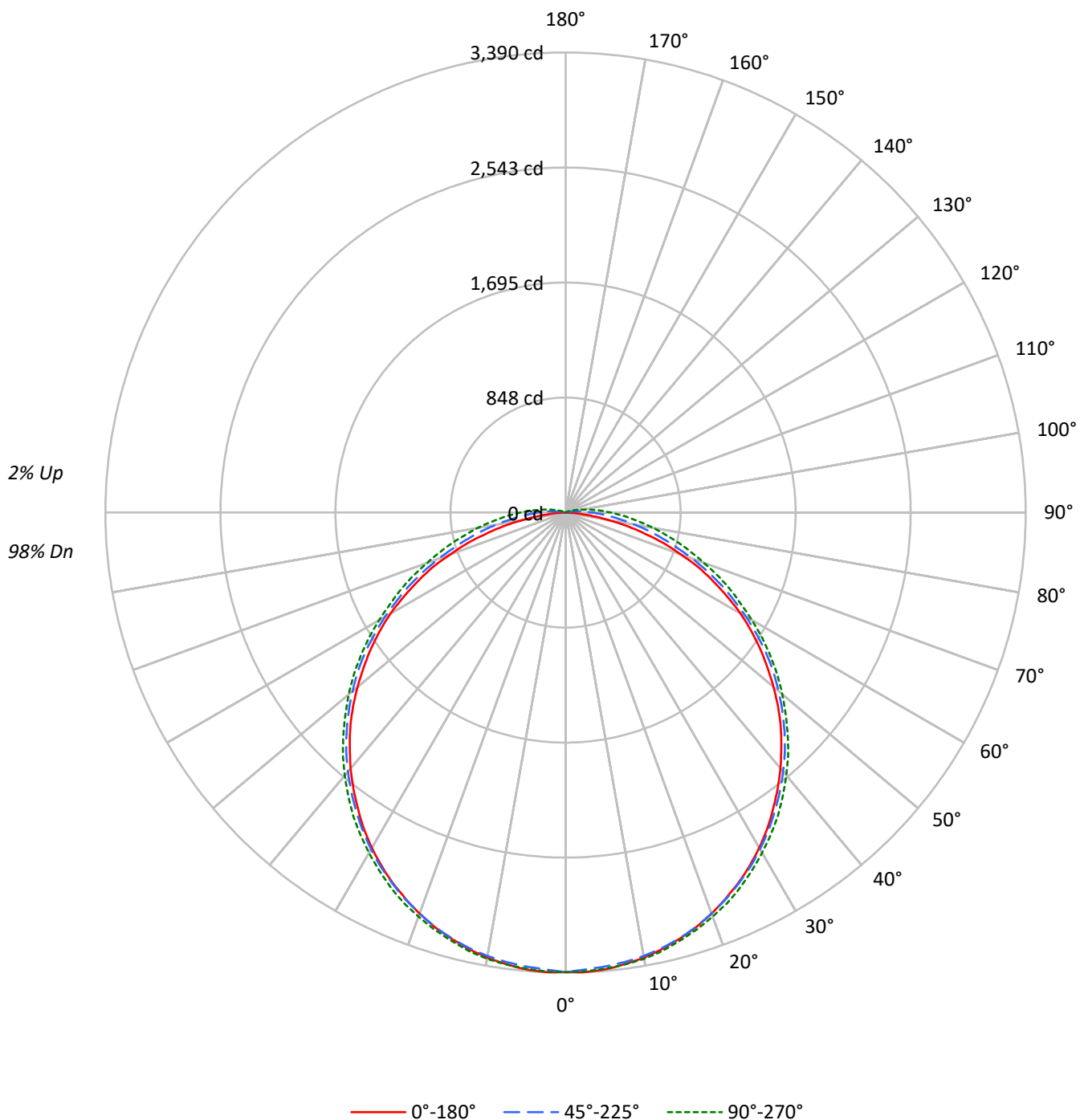
Input Watts (W): 95.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	13667	13667	13667
5°	13640	13361	13374
10°	13549	13122	13107
15°	13432	12858	12785
20°	13306	12562	12473
25°	13156	12258	12155
30°	12983	11934	11794
35°	12764	11578	11437
40°	12536	11203	11020
45°	12291	10795	10570
50°	11971	10323	10086
55°	11626	9805	9552
60°	11214	9134	8929
65°	10546	8383	8312
70°	9584	7497	7594
75°	8219	6527	6941
80°	6182	5575	6346
85°	3306	4612	5778

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 12291 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	320.4	3.1
10°-20°	919.1	9.0
20°-30°	1394.5	13.6
30°-40°	1686.2	16.5
40°-50°	1759.4	17.2
50°-60°	1608.6	15.7
60°-70°	1254.0	12.2
70°-80°	784.4	7.7
80°-90°	356.3	3.5
90°-100°	119.4	1.2
100°-110°	30.0	0.3
110°-120°	4.7	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°	2633.9	25.7
0°-40°	4320.1	42.2
0°-60°	7688.1	75.1
0°-90°	10082.9	98.5
90°-120°	154.1	1.5
90°-150°	154.1	1.5
90°-180°	154.0	1.5
0°-180°	10237.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3386	3386	3386	3386	3386	
5°	3379	3372	3357	3373	3373	321
15°	3250	3256	3247	3265	3264	917
25°	3011	3014	3017	3043	3047	1388
35°	2666	2678	2689	2716	2727	1669
45°	2243	2263	2281	2304	2315	1728
55°	1750	1771	1804	1830	1842	1564
65°	1203	1224	1266	1316	1337	1190
75°	609	646	741	829	860	649
85°	105	195	334	442	481	133
90°	1	73	197	296	332	4
95°	1	19	102	185	214	1
105°	2	2	17	50	66	2
115°	2	2	3	9	13	2
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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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3385.8	3385.8	3385.8	3385.8	3385.8
2.5°	3389.8	3385.0	3369.8	3385.0	3384.2
5°	3378.6	3372.2	3357.0	3373.0	3373.0
7.5°	3356.2	3353.9	3340.3	3358.6	3358.6
10°	3329.9	3329.1	3317.9	3337.9	3338.7
12.5°	3293.2	3296.4	3286.0	3305.2	3307.6
15°	3250.1	3255.7	3246.9	3265.3	3264.5
17.5°	3203.0	3206.2	3199.8	3220.6	3219.8
20°	3144.7	3148.7	3143.9	3165.5	3167.9
22.5°	3080.1	3085.7	3084.9	3107.2	3113.6
25°	3011.4	3013.8	3017.0	3042.6	3047.4
27.5°	2935.6	2939.6	2945.2	2968.3	2973.1
30°	2852.6	2859.0	2865.4	2889.3	2895.7
32.5°	2764.8	2771.2	2779.2	2810.3	2813.5
35°	2665.8	2677.8	2689.0	2716.1	2727.3
37.5°	2566.9	2582.0	2592.4	2621.1	2629.9
40°	2462.3	2477.5	2494.2	2524.6	2530.2
42.5°	2353.0	2370.5	2390.5	2417.6	2427.2
45°	2242.8	2262.8	2281.1	2303.5	2314.7
47.5°	2123.9	2143.8	2166.2	2191.7	2198.9
50°	2001.0	2024.1	2048.1	2072.0	2084.8
52.5°	1874.9	1902.8	1929.9	1955.5	1967.5
55°	1750.4	1771.1	1803.8	1830.2	1842.1
57.5°	1621.1	1638.6	1668.1	1711.2	1717.6
60°	1489.4	1505.3	1535.7	1570.8	1585.1
62.5°	1344.1	1365.6	1397.6	1442.3	1455.0
65°	1202.8	1223.6	1265.9	1316.2	1336.9
67.5°	1066.3	1073.5	1127.8	1180.5	1214.0
70°	905.1	932.2	995.3	1060.0	1085.5
72.5°	766.2	793.4	862.8	938.6	970.6
75°	609.0	646.5	740.7	829.3	860.4
77.5°	470.9	512.4	628.9	718.3	754.3
80°	328.8	393.5	520.4	621.0	660.1
82.5°	206.7	286.5	422.2	527.6	561.9
85°	105.4	194.8	334.4	442.2	481.3
87.5°	27.9	126.1	260.2	363.2	403.1
90°	0.8	72.6	197.1	296.1	332.0
92.5°	0.8	40.7	146.9	235.5	272.2
95°	0.8	19.2	102.2	185.2	213.9
97.5°	0.8	8.0	70.2	139.7	168.4
100°	0.8	4.0	44.7	101.4	126.1
102.5°	1.6	2.4	27.9	72.6	92.6
105°	1.6	2.4	16.8	49.5	66.2
107.5°	1.6	2.4	9.6	33.5	45.5
110°	2.4	2.4	5.6	20.8	30.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2.4	2.4	3.2	13.6	20.0
115°	2.4	2.4	3.2	8.8	12.8
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)