

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: P518149

Luminaire Tested: HVL8-4-LD4-3STD-40-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: P518149
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3STD-40-UNV-O-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10066.0 lumens
Efficiency: N/A
Efficacy: 105.4 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

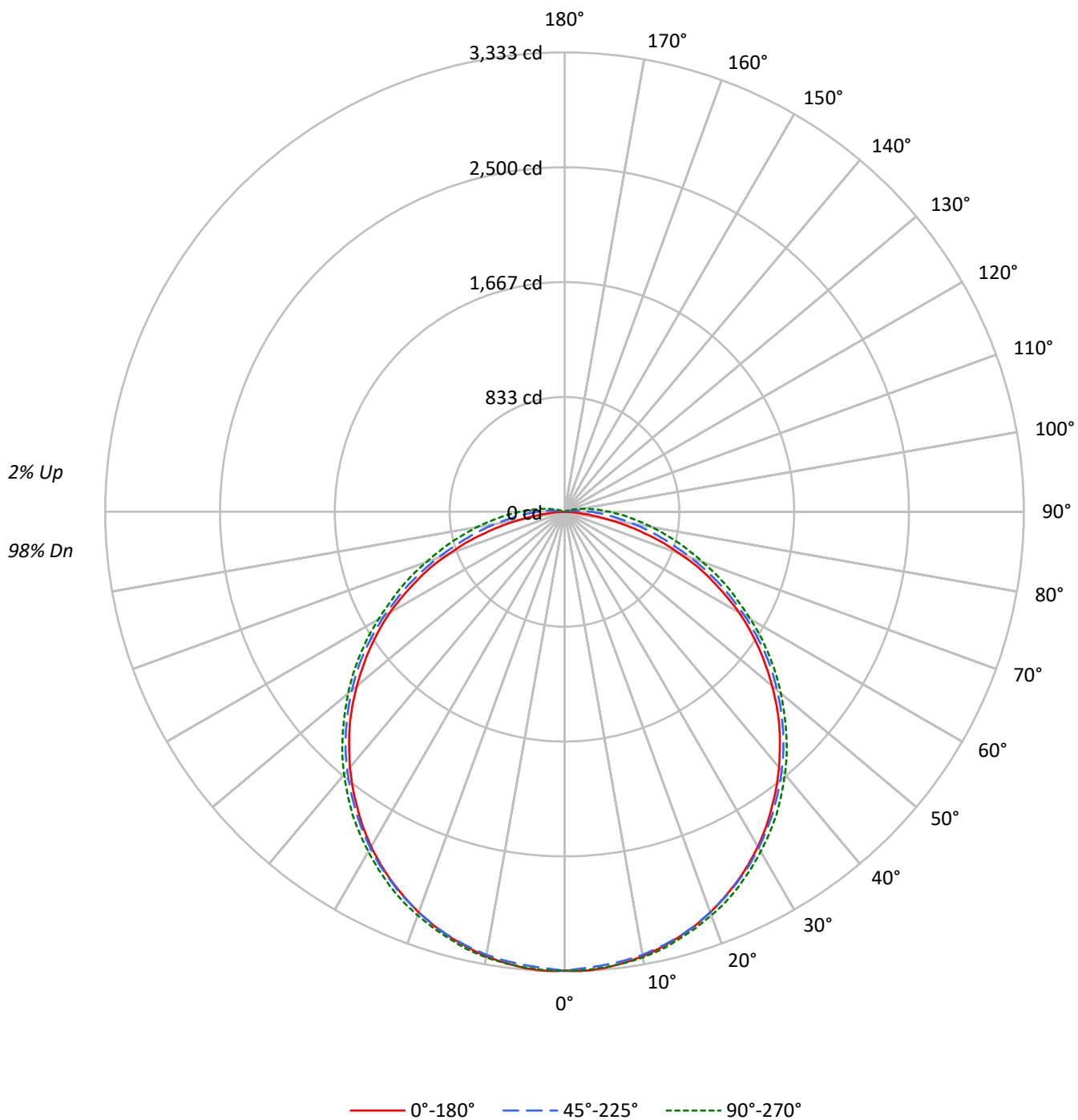
Input Watts (W): 95.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	13438	13438	13438
5°	13412	13138	13151
10°	13323	12903	12888
15°	13207	12643	12571
20°	13084	12352	12264
25°	12937	12053	11952
30°	12767	11735	11597
35°	12551	11385	11245
40°	12327	11016	10836
45°	12086	10614	10393
50°	11771	10151	9918
55°	11432	9642	9393
60°	11027	8981	8780
65°	10369	8242	8173
70°	9425	7372	7467
75°	8082	6418	6825
80°	6078	5482	6239
85°	3250	4535	5680

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 12086 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	315.0	3.1
10°-20°	903.7	9.0
20°-30°	1371.2	13.6
30°-40°	1658.0	16.5
40°-50°	1730.0	17.2
50°-60°	1581.8	15.7
60°-70°	1233.1	12.2
70°-80°	771.3	7.7
80°-90°	350.3	3.5
90°-100°	117.4	1.2
100°-110°	29.5	0.3
110°-120°	4.6	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°	2589.9	25.7
0°-40°	4248.0	42.2
0°-60°	7559.7	75.1
0°-90°	9914.5	98.5
90°-120°	151.6	1.5
90°-150°	151.6	1.5
90°-180°	152.0	1.5
0°-180°	10066.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3329	3329	3329	3329	3329	
5°	3322	3316	3301	3317	3317	315
15°	3196	3201	3193	3211	3210	902
25°	2961	2964	2967	2992	2996	1364
35°	2621	2633	2644	2671	2682	1641
45°	2205	2225	2243	2265	2276	1699
55°	1721	1742	1774	1800	1811	1538
65°	1183	1203	1245	1294	1315	1170
75°	599	636	728	815	846	638
85°	104	192	329	435	473	131
90°	1	71	194	291	326	4
95°	1	19	100	182	210	1
105°	2	2	16	49	65	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°	3329.2	3329.2	3329.2	3329.2	3329.2
2.5°	3333.1	3328.4	3313.5	3328.4	3327.7
5°	3322.2	3315.9	3301.0	3316.7	3316.7
7.5°	3300.2	3297.8	3284.5	3302.5	3302.5
10°	3274.3	3273.5	3262.5	3282.1	3282.9
12.5°	3238.2	3241.3	3231.1	3250.0	3252.3
15°	3195.8	3201.3	3192.7	3210.7	3209.9
17.5°	3149.5	3152.6	3146.4	3166.8	3166.0
20°	3092.2	3096.1	3091.4	3112.6	3115.0
22.5°	3028.6	3034.1	3033.3	3055.3	3061.6
25°	2961.1	2963.5	2966.6	2991.8	2996.5
27.5°	2886.6	2890.5	2896.0	2918.8	2923.5
30°	2805.0	2811.2	2817.5	2841.1	2847.3
32.5°	2718.6	2724.9	2732.8	2763.4	2766.5
35°	2621.3	2633.1	2644.1	2670.8	2681.7
37.5°	2524.0	2538.9	2549.1	2577.4	2586.0
40°	2421.2	2436.1	2452.6	2482.4	2487.9
42.5°	2313.7	2330.9	2350.5	2377.2	2386.7
45°	2205.4	2225.0	2243.0	2265.0	2276.0
47.5°	2088.4	2108.0	2130.0	2155.1	2162.2
50°	1967.6	1990.3	2013.9	2037.4	2050.0
52.5°	1843.6	1871.0	1897.7	1922.8	1934.6
55°	1721.1	1741.5	1773.7	1799.6	1811.4
57.5°	1594.0	1611.2	1640.3	1682.7	1688.9
60°	1464.5	1480.2	1510.0	1544.5	1558.7
62.5°	1321.6	1342.8	1374.2	1418.2	1430.7
65°	1182.7	1203.1	1244.7	1294.2	1314.6
67.5°	1048.5	1055.6	1109.0	1160.8	1193.7
70°	890.0	916.7	978.7	1042.2	1067.4
72.5°	753.4	780.1	848.4	923.0	954.3
75°	598.8	635.7	728.3	815.4	846.0
77.5°	463.0	503.9	618.4	706.3	741.7
80°	323.3	386.9	511.7	610.6	649.0
82.5°	203.3	281.8	415.2	518.8	552.5
85°	103.6	191.5	328.8	434.8	473.2
87.5°	27.5	124.0	255.9	357.1	396.3
90°	0.8	71.4	193.9	291.2	326.5
92.5°	0.8	40.0	144.4	231.5	267.6
95°	0.8	18.8	100.5	182.1	210.3
97.5°	0.8	7.8	69.1	137.3	165.6
100°	0.8	3.9	44.0	99.7	124.0
102.5°	1.6	2.4	27.5	71.4	91.0
105°	1.6	2.4	16.5	48.7	65.1
107.5°	1.6	2.4	9.4	33.0	44.7
110°	2.4	2.4	5.5	20.4	29.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2.4	2.4	3.1	13.3	19.6
115°	2.4	2.4	3.1	8.6	12.6
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)