

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: P517711

Luminaire Tested: HVL12-8-LD4-3STD-35-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: P517711
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-8-LD4-3STD-35-UNV-C-EDD-90
Description: 8 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 22984.1 lumens
Efficiency: N/A
Efficacy: 117.1 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 8' x H: 0.17')
CIE Type: Direct

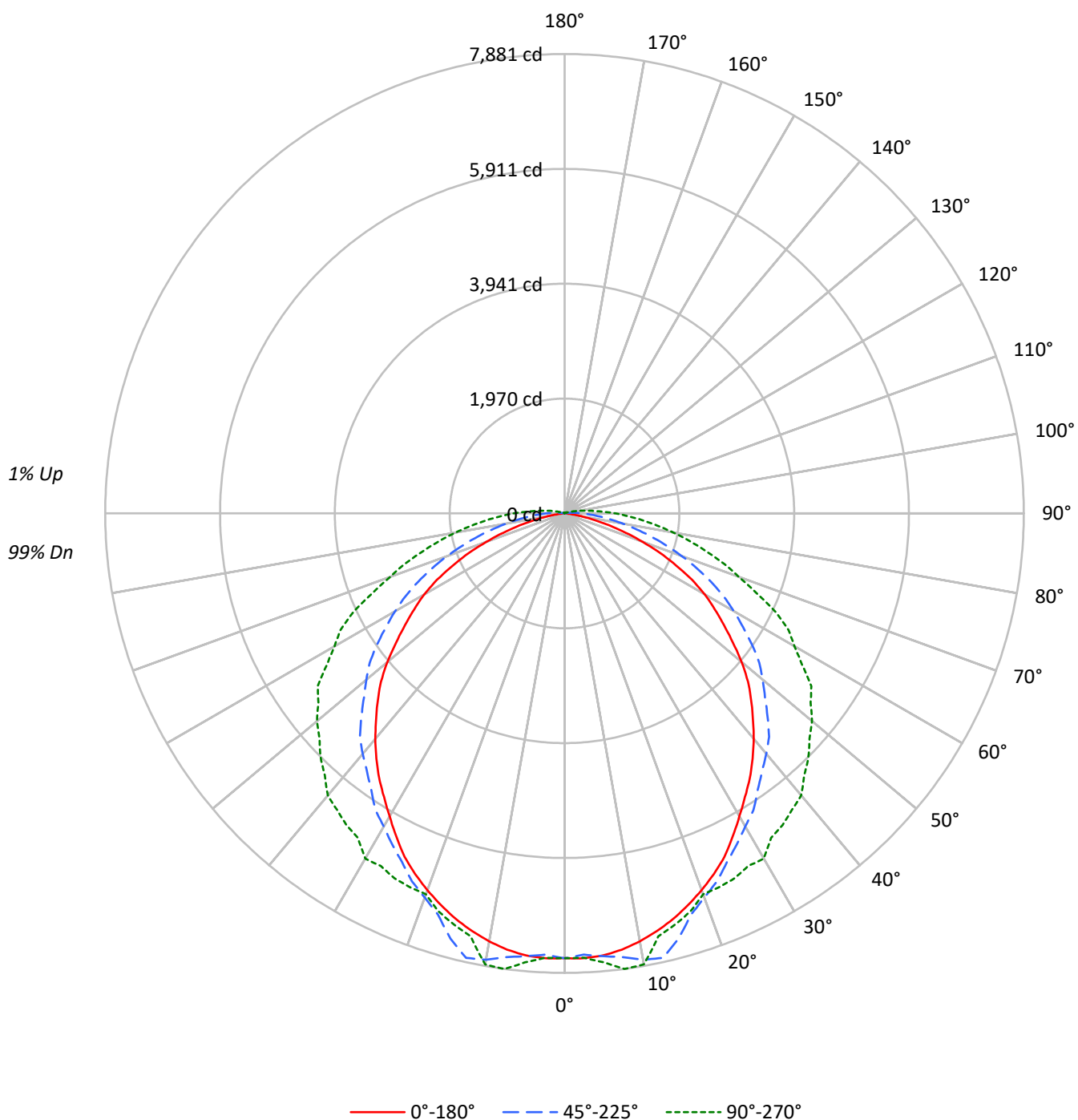
Input Watts (W): 196.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	10265	10265	10265
5°	10261	10176	10289
10°	10144	10379	10425
15°	9979	10160	9744
20°	9773	9578	9384
25°	9554	9224	9512
30°	9212	8949	9689
35°	8975	8692	9594
40°	8719	8516	9737
45°	8445	8274	9652
50°	8107	8020	9681
55°	7601	7749	9794
60°	7226	7350	9512
65°	6437	6861	9371
70°	5309	6198	8592
75°	3853	5367	8079
80°	2229	4537	7564
85°	891	3691	7118

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 9794 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	733.3	3.2
10°-20°	2088.2	9.1
20°-30°	3107.0	13.5
30°-40°	3734.6	16.2
40°-50°	3930.9	17.1
50°-60°	3647.4	15.9
60°-70°	2883.9	12.5
70°-80°	1761.6	7.7
80°-90°	767.5	3.3
90°-100°	238.9	1.0
100°-110°	53.7	0.2
110°-120°	21.6	0.1
120°-130°	12.1	0.1
130°-140°	3.3	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°	5928.5	25.8
0°-40°	9663.1	42.0
0°-60°	17241.4	75.0
0°-90°	22654.4	98.6
90°-120°	314.2	1.4
90°-150°	329.6	1.4
90°-180°	330.0	1.4
0°-180°	22984.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	7629	7629	7629	7629	7629	
5°	7611	7595	7622	7707	7729	721
15°	7204	7480	7553	7303	7308	2029
25°	6498	6913	6598	6795	6905	2983
35°	5544	5698	5783	6308	6523	3465
45°	4530	4551	4925	5705	5918	3492
55°	3337	3391	3929	4788	5169	2998
65°	2112	2179	2768	3663	3996	2092
75°	799	1058	1543	2372	2521	872
85°	72	249	602	1167	1340	111
90°	2	75	316	740	872	3
95°	2	19	138	406	496	1
105°	2	11	28	79	112	2
115°	2	6	22	36	37	3
125°	2	3	9	23	33	2
135°	3	3	3	8	11	2
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°	7629.4	7629.4	7629.4	7629.4	7629.4
2.5°	7638.8	7618.6	7576.6	7617.0	7627.9
5°	7610.8	7595.2	7621.7	7707.1	7728.9
7.5°	7547.1	7606.1	7676.1	7831.5	7881.2
10°	7452.3	7564.2	7774.0	7906.1	7854.8
12.5°	7337.3	7526.9	7808.2	7550.2	7430.5
15°	7203.6	7480.2	7553.3	7303.1	7307.7
17.5°	7046.6	7441.4	7216.0	7209.8	7164.7
20°	6877.2	7310.8	7012.4	7000.0	6951.8
22.5°	6695.4	7138.3	6832.1	6807.3	6937.8
25°	6498.0	6913.0	6597.5	6794.8	6905.2
27.5°	6250.9	6617.7	6401.6	6681.4	6819.7
30°	6000.7	6313.1	6201.2	6591.2	6836.8
32.5°	5766.0	5994.4	6036.4	6557.1	6597.5
35°	5543.7	5697.6	5783.1	6308.4	6522.9
37.5°	5299.7	5341.7	5568.6	6204.3	6411.0
40°	5051.1	5024.6	5388.3	6033.3	6319.3
42.5°	4783.7	4774.4	5197.2	5947.8	6090.8
45°	4530.4	4550.6	4925.2	5705.4	5918.3
47.5°	4270.9	4297.3	4667.2	5439.6	5703.8
50°	3969.4	4003.6	4437.2	5203.4	5543.7
52.5°	3643.0	3708.3	4213.4	4979.6	5323.0
55°	3336.8	3391.2	3929.0	4788.4	5169.2
57.5°	3057.1	3089.7	3635.2	4547.5	4835.0
60°	2782.0	2789.7	3358.6	4280.2	4555.3
62.5°	2466.5	2480.5	3074.2	3964.7	4333.0
65°	2112.1	2179.0	2768.0	3663.2	3995.8
67.5°	1781.1	1897.6	2455.6	3386.5	3560.6
70°	1426.7	1624.1	2149.4	3061.7	3184.5
72.5°	1101.9	1333.5	1835.5	2698.0	2870.6
75°	798.8	1058.4	1543.3	2371.7	2520.9
77.5°	537.7	802.0	1269.8	2011.1	2208.5
80°	321.7	585.9	1025.8	1677.0	1899.2
82.5°	164.7	393.2	795.7	1406.5	1605.5
85°	71.5	248.7	601.5	1167.2	1339.7
87.5°	20.2	141.4	442.9	943.4	1089.5
90°	1.6	74.6	315.5	739.8	871.9
92.5°	1.6	35.7	222.2	559.5	660.5
95°	1.6	18.7	138.3	405.6	495.8
97.5°	1.6	10.9	83.9	287.5	363.7
100°	1.6	9.3	49.7	191.2	259.5
102.5°	1.6	10.9	34.2	121.2	169.4
105°	1.6	10.9	28.0	79.3	111.9
107.5°	3.1	10.9	24.9	59.1	77.7
110°	1.6	9.3	26.4	45.1	60.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	3.1	7.8	24.9	37.3	45.1
115°	1.6	6.2	21.8	35.7	37.3
117.5°	3.1	4.7	17.1	35.7	37.3
120°	3.1	3.1	14.0	34.2	38.9
122.5°	3.1	3.1	10.9	31.1	37.3
125°	1.6	3.1	9.3	23.3	32.6
127.5°	3.1	3.1	7.8	18.7	24.9
130°	3.1	3.1	6.2	14.0	18.7
132.5°	3.1	3.1	4.7	10.9	14.0
135°	3.1	3.1	3.1	7.8	10.9
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)