

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: P517567

Luminaire Tested: HVL12-4-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: P517567
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3STD-35-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11492.0 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: 4' x H: 0.17')
CIE Type: Direct

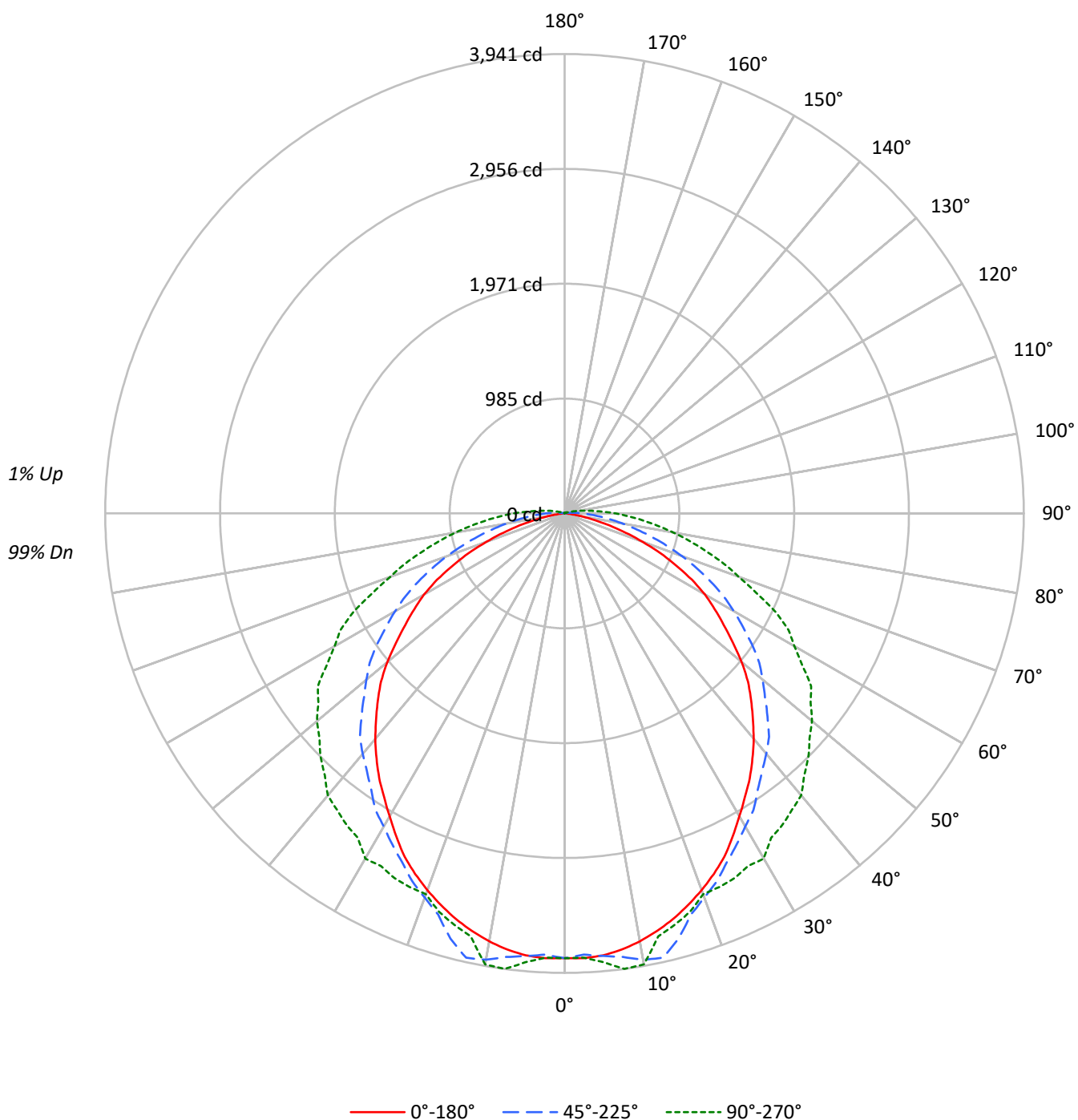
Input Watts (W): 98.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	10265	10265	10265
5°	10242	10163	10289
10°	10107	10352	10425
15°	9923	10122	9744
20°	9700	9530	9384
25°	9463	9165	9512
30°	9104	8879	9689
35°	8848	8610	9594
40°	8572	8423	9737
45°	8276	8168	9652
50°	7916	7901	9681
55°	7388	7614	9794
60°	6982	7200	9512
65°	6173	6697	9371
70°	5036	6019	8593
75°	3594	5176	8079
80°	2017	4330	7564
85°	747	3459	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°	366.6	3.2
10°-20°	1044.1	9.1
20°-30°	1553.5	13.5
30°-40°	1867.3	16.2
40°-50°	1965.4	17.1
50°-60°	1823.7	15.9
60°-70°	1442.0	12.5
70°-80°	880.8	7.7
80°-90°	383.8	3.3
90°-100°	119.5	1.0
100°-110°	26.8	0.2
110°-120°	10.8	0.1
120°-130°	6.1	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°	2964.2	25.8
0°-40°	4831.5	42.0
0°-60°	8620.7	75.0
0°-90°	11327.2	98.6
90°-120°	157.1	1.4
90°-150°	164.8	1.4
90°-180°	165.0	1.4
0°-180°	11492.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3815	3815	3815	3815	3815	
5°	3805	3798	3811	3854	3864	361
15°	3602	3740	3777	3652	3654	1015
25°	3249	3456	3299	3397	3453	1492
35°	2772	2849	2892	3154	3261	1732
45°	2265	2275	2463	2853	2959	1746
55°	1668	1696	1964	2394	2585	1499
65°	1056	1090	1384	1832	1998	1046
75°	399	529	772	1186	1260	436
85°	36	124	301	584	670	55
90°	1	37	158	370	436	2
95°	1	9	69	203	248	1
105°	1	5	14	40	56	1
115°	1	3	11	18	19	1
125°	1	2	5	12	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°	3814.7	3814.7	3814.7	3814.7	3814.7
2.5°	3819.4	3809.3	3788.3	3808.5	3813.9
5°	3805.4	3797.6	3810.8	3853.6	3864.5
7.5°	3773.5	3803.1	3838.0	3915.7	3940.6
10°	3726.1	3782.1	3887.0	3953.0	3927.4
12.5°	3668.6	3763.4	3904.1	3775.1	3715.3
15°	3601.8	3740.1	3776.6	3651.5	3653.9
17.5°	3523.3	3720.7	3608.0	3604.9	3582.4
20°	3438.6	3655.4	3506.2	3500.0	3475.9
22.5°	3347.7	3569.2	3416.1	3403.6	3468.9
25°	3249.0	3456.5	3298.7	3397.4	3452.6
27.5°	3125.4	3308.8	3200.8	3340.7	3409.9
30°	3000.3	3156.5	3100.6	3295.6	3418.4
32.5°	2883.0	2997.2	3018.2	3278.5	3298.7
35°	2771.9	2848.8	2891.5	3154.2	3261.4
37.5°	2649.9	2670.8	2784.3	3102.1	3205.5
40°	2525.5	2512.3	2694.2	3016.7	3159.6
42.5°	2391.9	2387.2	2598.6	2973.9	3045.4
45°	2265.2	2275.3	2462.6	2852.7	2959.1
47.5°	2135.4	2148.6	2333.6	2719.8	2851.9
50°	1984.7	2001.8	2218.6	2601.7	2771.9
52.5°	1821.5	1854.1	2106.7	2489.8	2661.5
55°	1668.4	1695.6	1964.5	2394.2	2584.6
57.5°	1528.5	1544.8	1817.6	2273.8	2417.5
60°	1391.0	1394.9	1679.3	2140.1	2277.6
62.5°	1233.2	1240.2	1537.1	1982.3	2166.5
65°	1056.1	1089.5	1384.0	1831.6	1997.9
67.5°	890.5	948.8	1227.8	1693.3	1780.3
70°	713.4	812.1	1074.7	1530.9	1592.3
72.5°	551.0	666.7	917.7	1349.0	1435.3
75°	399.4	529.2	771.6	1185.8	1260.4
77.5°	268.9	401.0	634.9	1005.6	1104.2
80°	160.9	293.0	512.9	838.5	949.6
82.5°	82.4	196.6	397.9	703.3	802.7
85°	35.7	124.3	300.7	583.6	669.8
87.5°	10.1	70.7	221.5	471.7	544.7
90°	0.8	37.3	157.7	369.9	435.9
92.5°	0.8	17.9	111.1	279.8	330.3
95°	0.8	9.3	69.2	202.8	247.9
97.5°	0.8	5.4	42.0	143.8	181.8
100°	0.8	4.7	24.9	95.6	129.8
102.5°	0.8	5.4	17.1	60.6	84.7
105°	0.8	5.4	14.0	39.6	56.0
107.5°	1.6	5.4	12.4	29.5	38.9
110°	0.8	4.7	13.2	22.5	30.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.6	3.9	12.4	18.7	22.5
115°	0.8	3.1	10.9	17.9	18.7
117.5°	1.6	2.3	8.5	17.9	18.7
120°	1.6	1.6	7.0	17.1	19.4
122.5°	1.6	1.6	5.4	15.5	18.7
125°	0.8	1.6	4.7	11.7	16.3
127.5°	1.6	1.6	3.9	9.3	12.4
130°	1.6	1.6	3.1	7.0	9.3
132.5°	1.6	1.6	2.3	5.4	7.0
135°	1.6	1.6	1.6	3.9	5.4
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)