

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: P518099

Luminaire Tested: HVL8-4-LD4-2STD-40-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: P518099
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2STD-40-UNV-C-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: 7050.0 lumens
Efficiency: N/A
Efficacy: 107.8 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

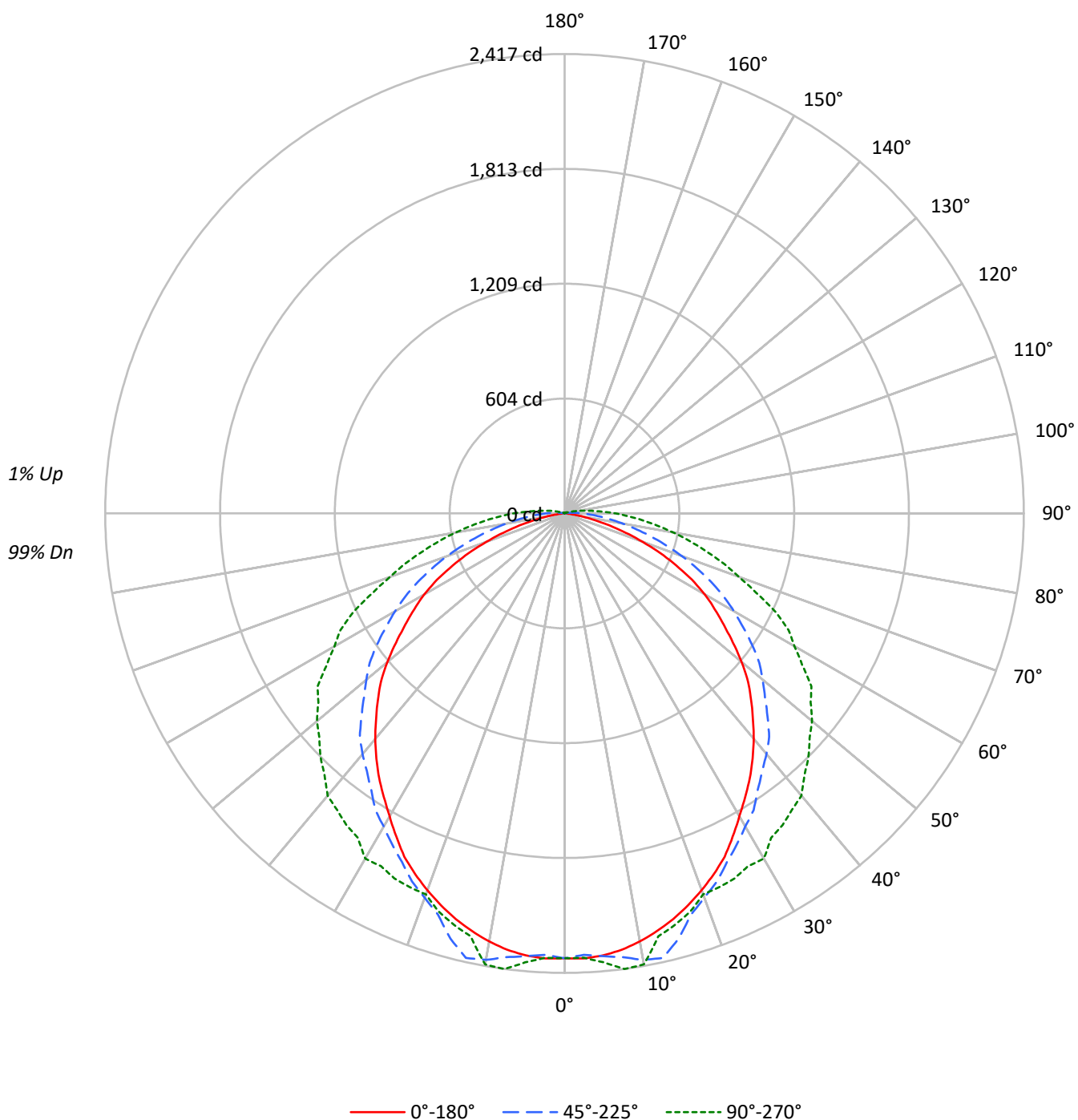
Input Watts (W): 65.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	9446	9446	9446
5°	9425	9305	9400
10°	9301	9431	9458
15°	9132	9175	8779
20°	8926	8594	8396
25°	8708	8222	8448
30°	8377	7922	8541
35°	8142	7638	8390
40°	7888	7424	8442
45°	7615	7149	8290
50°	7284	6860	8227
55°	6798	6551	8222
60°	6425	6127	7871
65°	5680	5622	7620
70°	4634	4966	6833
75°	3307	4172	6238
80°	1856	3370	5600
85°	687	2545	4933

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8290 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	224.9	3.2
10°-20°	640.5	9.1
20°-30°	953.0	13.5
30°-40°	1145.5	16.2
40°-50°	1205.7	17.1
50°-60°	1118.8	15.9
60°-70°	884.6	12.5
70°-80°	540.3	7.7
80°-90°	235.4	3.3
90°-100°	73.3	1.0
100°-110°	16.5	0.2
110°-120°	6.6	0.1
120°-130°	3.7	0.1
130°-140°	1.0	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°	1818.5	25.8
0°-40°	2964.0	42.0
0°-60°	5288.5	75.0
0°-90°	6948.9	98.6
90°-120°	96.4	1.4
90°-150°	101.1	1.4
90°-180°	101.0	1.4
0°-180°	7050.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2340	2340	2340	2340	2340	
5°	2334	2330	2338	2364	2371	221
15°	2210	2294	2317	2240	2242	622
25°	1993	2120	2024	2084	2118	915
35°	1700	1748	1774	1935	2001	1063
45°	1390	1396	1511	1750	1815	1071
55°	1024	1040	1205	1469	1586	920
65°	648	668	849	1124	1226	642
75°	245	325	473	728	773	267
85°	22	76	184	358	411	34
90°	0	23	97	227	267	1
95°	0	6	42	124	152	0
105°	0	3	9	24	34	1
115°	0	2	7	11	11	1
125°	0	1	3	7	10	1
135°	1	1	1	2	3	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°	2340.2	2340.2	2340.2	2340.2	2340.2
2.5°	2343.1	2336.9	2324.0	2336.4	2339.7
5°	2334.5	2329.7	2337.8	2364.1	2370.7
7.5°	2315.0	2333.1	2354.5	2402.2	2417.4
10°	2285.9	2320.2	2384.6	2425.1	2409.3
12.5°	2250.6	2308.8	2395.0	2315.9	2279.2
15°	2209.6	2294.5	2316.9	2240.1	2241.5
17.5°	2161.4	2282.5	2213.4	2211.5	2197.7
20°	2109.5	2242.5	2151.0	2147.1	2132.4
22.5°	2053.7	2189.6	2095.7	2088.0	2128.1
25°	1993.2	2120.4	2023.7	2084.2	2118.1
27.5°	1917.4	2029.9	1963.6	2049.4	2091.8
30°	1840.6	1936.4	1902.1	2021.8	2097.1
32.5°	1768.6	1838.7	1851.6	2011.3	2023.7
35°	1700.5	1747.7	1773.9	1935.0	2000.8
37.5°	1625.6	1638.5	1708.1	1903.1	1966.5
40°	1549.3	1541.2	1652.8	1850.6	1938.3
42.5°	1467.3	1464.5	1594.2	1824.4	1868.3
45°	1389.6	1395.8	1510.7	1750.0	1815.3
47.5°	1310.0	1318.1	1431.6	1668.5	1749.6
50°	1217.5	1228.0	1361.0	1596.1	1700.5
52.5°	1117.4	1137.5	1292.4	1527.4	1632.8
55°	1023.5	1040.2	1205.1	1468.8	1585.6
57.5°	937.7	947.7	1115.0	1394.9	1483.1
60°	853.3	855.7	1030.2	1312.9	1397.3
62.5°	756.6	760.8	943.0	1216.1	1329.1
65°	647.9	668.4	849.0	1123.6	1225.6
67.5°	546.3	582.1	753.2	1038.8	1092.2
70°	437.6	498.2	659.3	939.1	976.8
72.5°	338.0	409.0	563.0	827.6	880.5
75°	245.0	324.6	473.4	727.5	773.2
77.5°	164.9	246.0	389.5	616.9	677.4
80°	98.7	179.7	314.6	514.4	582.6
82.5°	50.5	120.6	244.1	431.4	492.5
85°	21.9	76.3	184.5	358.0	410.9
87.5°	6.2	43.4	135.9	289.4	334.2
90°	0.5	22.9	96.8	226.9	267.4
92.5°	0.5	11.0	68.2	171.6	202.6
95°	0.5	5.7	42.4	124.4	152.1
97.5°	0.5	3.3	25.7	88.2	111.6
100°	0.5	2.9	15.3	58.6	79.6
102.5°	0.5	3.3	10.5	37.2	52.0
105°	0.5	3.3	8.6	24.3	34.3
107.5°	1.0	3.3	7.6	18.1	23.8
110°	0.5	2.9	8.1	13.8	18.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.0	2.4	7.6	11.4	13.8
115°	0.5	1.9	6.7	11.0	11.4
117.5°	1.0	1.4	5.2	11.0	11.4
120°	1.0	1.0	4.3	10.5	11.9
122.5°	1.0	1.0	3.3	9.5	11.4
125°	0.5	1.0	2.9	7.2	10.0
127.5°	1.0	1.0	2.4	5.7	7.6
130°	1.0	1.0	1.9	4.3	5.7
132.5°	1.0	1.0	1.4	3.3	4.3
135°	1.0	1.0	1.0	2.4	3.3
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)