

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: P518105

Luminaire Tested: HVL8-4-LD4-2STD-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: P518105
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2STD-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: 5648.0 lumens
Efficiency: N/A
Efficacy: 86.4 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

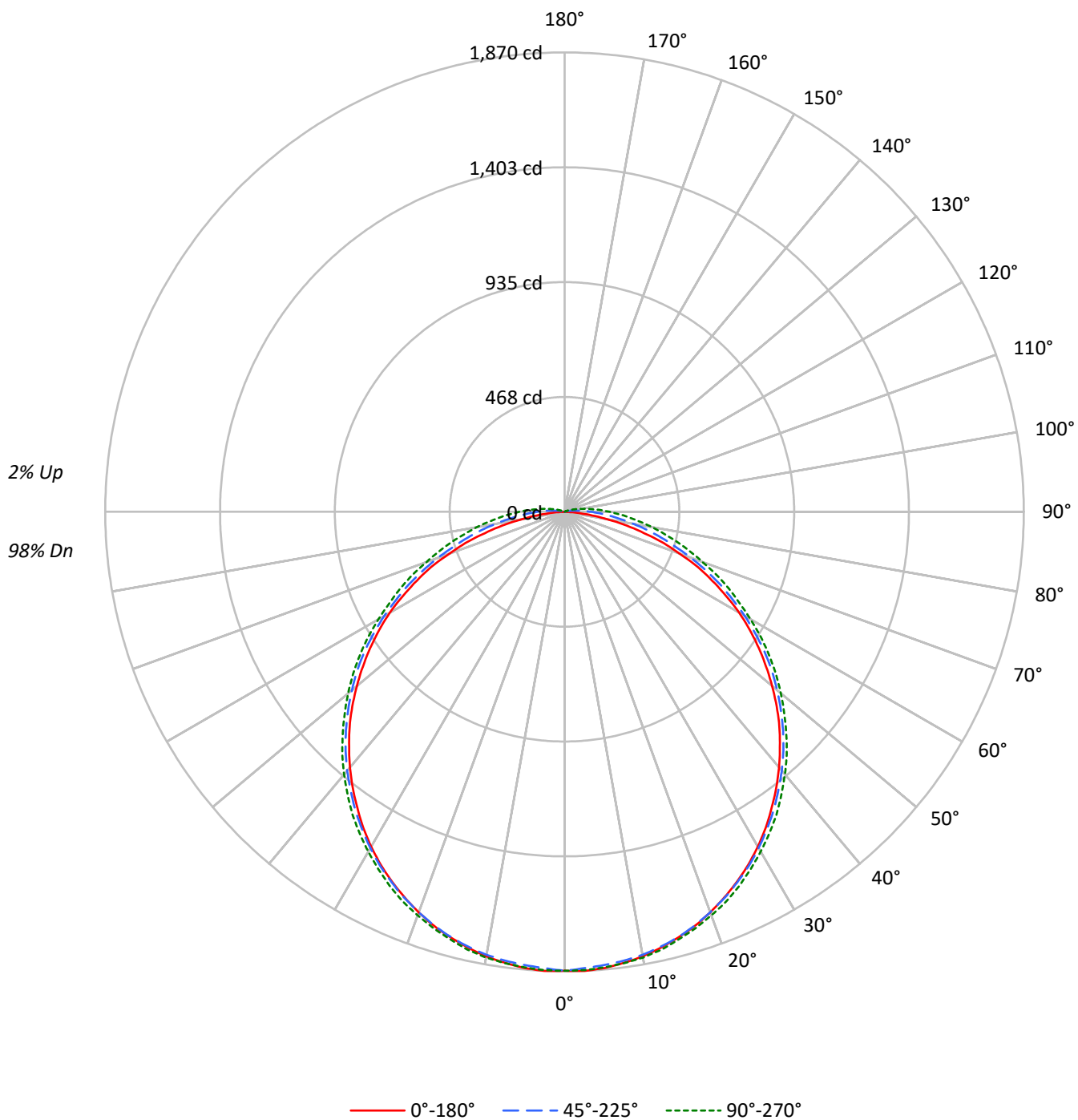
Input Watts (W): 65.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

TEST NUMBER: P518105

CATALOG NUMBER: HVL8-4-LD4-2STD-50-UNV-O-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P518105

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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°	7540	7540	7540
5°	7526	7372	7379
10°	7475	7240	7231
15°	7411	7094	7054
20°	7341	6931	6881
25°	7259	6763	6706
30°	7163	6584	6507
35°	7042	6388	6310
40°	6916	6181	6080
45°	6781	5956	5832
50°	6605	5696	5565
55°	6414	5410	5271
60°	6187	5040	4927
65°	5818	4625	4586
70°	5288	4136	4190
75°	4535	3601	3830
80°	3411	3076	3501
85°	1823	2545	3187

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 6781 cd/sqm

TEST NUMBER: P518105

CATALOG NUMBER: HVL8-4-LD4-2STD-50-UNV-O-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	176.8	3.1
10°-20°	507.1	9.0
20°-30°	769.4	13.6
30°-40°	930.3	16.5
40°-50°	970.7	17.2
50°-60°	887.5	15.7
60°-70°	691.9	12.2
70°-80°	432.8	7.7
80°-90°	196.6	3.5
90°-100°	65.9	1.2
100°-110°	16.5	0.3
110°-120°	2.6	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°	1453.2	25.7
0°-40°	2383.5	42.2
0°-60°	4241.8	75.1
0°-90°	5563.0	98.5
90°-120°	85.0	1.5
90°-150°	85.0	1.5
90°-180°	85.0	1.5
0°-180°	5648.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1868	1868	1868	1868	1868	
5°	1864	1860	1852	1861	1861	177
15°	1793	1796	1791	1802	1801	506
25°	1662	1663	1665	1679	1681	766
35°	1471	1477	1484	1499	1505	921
45°	1237	1248	1259	1271	1277	953
55°	966	977	995	1010	1016	863
65°	664	675	698	726	738	657
75°	336	357	409	458	475	358
85°	58	107	184	244	266	74
90°	0	40	109	163	183	2
95°	0	11	56	102	118	0
105°	1	1	9	27	37	1
115°	1	1	2	5	7	1
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

TEST NUMBER: P518105

CATALOG NUMBER: HVL8-4-LD4-2STD-50-UNV-O-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1868.0	1868.0	1868.0	1868.0	1868.0
2.5°	1870.2	1867.6	1859.2	1867.6	1867.1
5°	1864.1	1860.5	1852.2	1861.0	1861.0
7.5°	1851.7	1850.4	1842.9	1853.0	1853.0
10°	1837.2	1836.8	1830.6	1841.6	1842.0
12.5°	1816.9	1818.7	1813.0	1823.5	1824.9
15°	1793.2	1796.2	1791.4	1801.5	1801.1
17.5°	1767.2	1768.9	1765.4	1776.9	1776.4
20°	1735.0	1737.2	1734.6	1746.5	1747.8
22.5°	1699.4	1702.4	1702.0	1714.3	1717.9
25°	1661.5	1662.8	1664.6	1678.7	1681.3
27.5°	1619.7	1621.9	1624.9	1637.7	1640.3
30°	1573.9	1577.4	1580.9	1594.1	1597.6
32.5°	1525.4	1528.9	1533.3	1550.5	1552.3
35°	1470.8	1477.4	1483.6	1498.6	1504.7
37.5°	1416.2	1424.6	1430.3	1446.2	1451.0
40°	1358.5	1366.9	1376.1	1392.9	1395.9
42.5°	1298.2	1307.9	1318.9	1333.9	1339.1
45°	1237.4	1248.4	1258.6	1270.9	1277.1
47.5°	1171.8	1182.8	1195.1	1209.2	1213.2
50°	1104.0	1116.8	1130.0	1143.2	1150.2
52.5°	1034.4	1049.8	1064.8	1078.9	1085.5
55°	965.7	977.2	995.2	1009.8	1016.4
57.5°	894.4	904.1	920.4	944.1	947.7
60°	821.7	830.5	847.3	866.6	874.6
62.5°	741.6	753.5	771.1	795.7	802.8
65°	663.6	675.1	698.4	726.2	737.6
67.5°	588.3	592.3	622.2	651.3	669.8
70°	499.4	514.3	549.1	584.8	598.9
72.5°	422.7	437.7	476.0	517.9	535.5
75°	336.0	356.7	408.7	457.5	474.7
77.5°	259.8	282.7	347.0	396.3	416.1
80°	181.4	217.1	287.1	342.6	364.2
82.5°	114.1	158.1	233.0	291.1	310.0
85°	58.1	107.4	184.5	244.0	265.5
87.5°	15.4	69.6	143.6	200.4	222.4
90°	0.4	40.1	108.8	163.4	183.2
92.5°	0.4	22.5	81.0	129.9	150.2
95°	0.4	10.6	56.4	102.2	118.0
97.5°	0.4	4.4	38.8	77.1	92.9
100°	0.4	2.2	24.7	55.9	69.6
102.5°	0.9	1.3	15.4	40.1	51.1
105°	0.9	1.3	9.2	27.3	36.6
107.5°	0.9	1.3	5.3	18.5	25.1
110°	1.3	1.3	3.1	11.4	16.7

TEST NUMBER: P518105

CATALOG NUMBER: HVL8-4-LD4-2STD-50-UNV-O-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.3	1.3	1.8	7.5	11.0
115°	1.3	1.3	1.8	4.8	7.0
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)