

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: P518101

Luminaire Tested: HVL8-4-LD4-2STD-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: P518101
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-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: 5363.0 lumens
Efficiency: N/A
Efficacy: 82.0 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

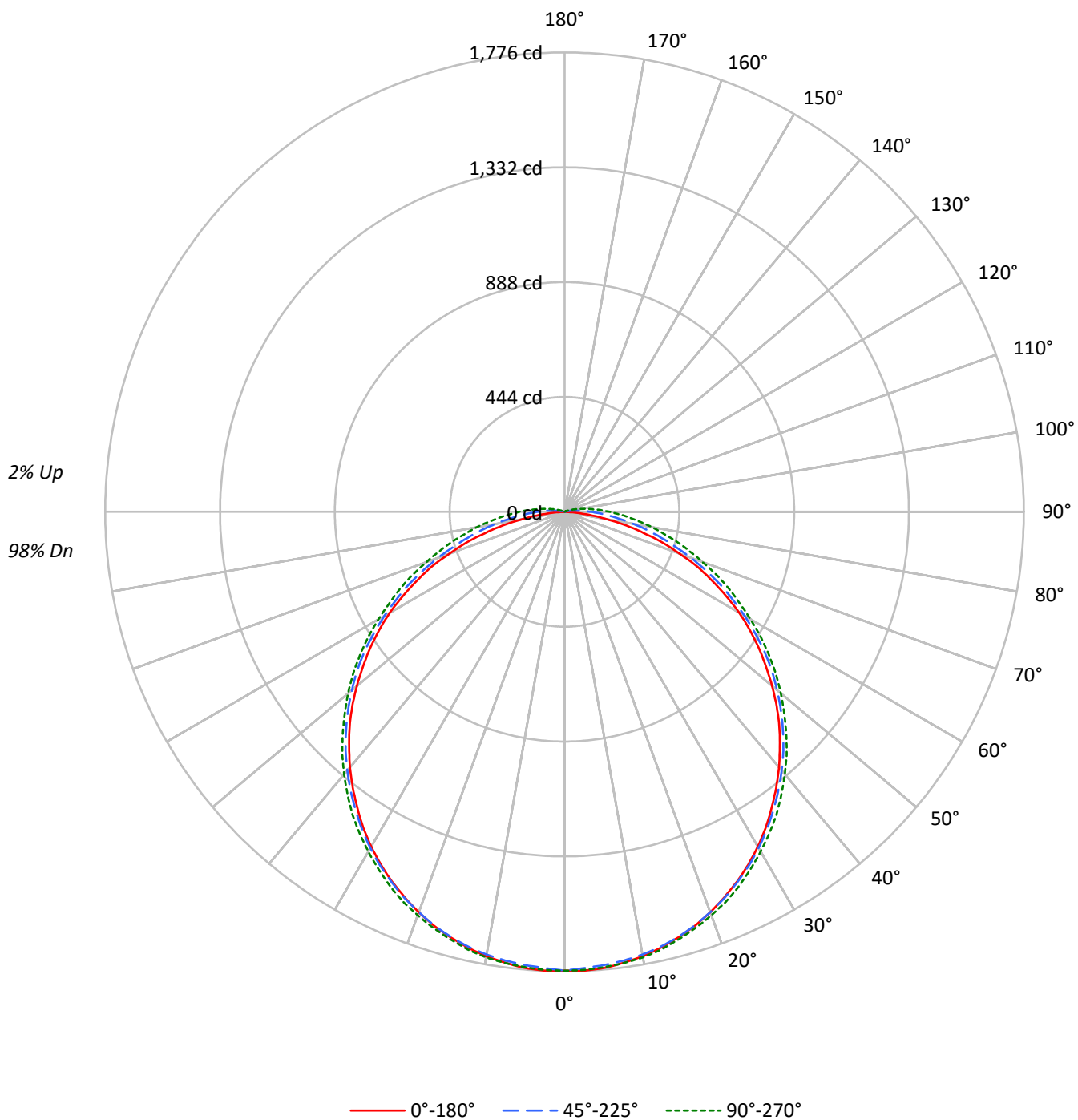
Input Watts (W): 65.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

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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°	7160	7160	7160
5°	7146	7000	7007
10°	7098	6874	6866
15°	7037	6736	6698
20°	6971	6581	6534
25°	6892	6422	6368
30°	6802	6252	6179
35°	6687	6065	5992
40°	6568	5869	5773
45°	6439	5655	5537
50°	6271	5408	5284
55°	6091	5137	5005
60°	5875	4785	4678
65°	5524	4392	4355
70°	5021	3928	3978
75°	4305	3419	3637
80°	3239	2920	3324
85°	1732	2416	3026

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 6439 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	167.9	3.1
10°-20°	481.5	9.0
20°-30°	730.6	13.6
30°-40°	883.4	16.5
40°-50°	921.7	17.2
50°-60°	842.7	15.7
60°-70°	656.9	12.2
70°-80°	410.9	7.7
80°-90°	186.7	3.5
90°-100°	62.6	1.2
100°-110°	15.7	0.3
110°-120°	2.5	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°	1379.9	25.7
0°-40°	2263.2	42.2
0°-60°	4027.7	75.1
0°-90°	5282.2	98.5
90°-120°	80.8	1.5
90°-150°	80.8	1.5
90°-180°	81.0	1.5
0°-180°	5363.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1774	1774	1774	1774	1774	
5°	1770	1767	1759	1767	1767	168
15°	1703	1706	1701	1711	1710	481
25°	1578	1579	1581	1594	1596	727
35°	1397	1403	1409	1423	1429	874
45°	1175	1185	1195	1207	1213	905
55°	917	928	945	959	965	819
65°	630	641	663	690	700	623
75°	319	339	388	434	451	340
85°	55	102	175	232	252	70
90°	0	38	103	155	174	2
95°	0	10	54	97	112	0
105°	1	1	9	26	35	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

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1773.8	1773.8	1773.8	1773.8	1773.8
2.5°	1775.8	1773.3	1765.4	1773.3	1772.9
5°	1770.0	1766.6	1758.7	1767.1	1767.1
7.5°	1758.3	1757.0	1749.9	1759.5	1759.5
10°	1744.5	1744.1	1738.2	1748.7	1749.1
12.5°	1725.3	1726.9	1721.5	1731.5	1732.8
15°	1702.7	1705.6	1701.0	1710.6	1710.2
17.5°	1678.0	1679.7	1676.3	1687.2	1686.8
20°	1647.5	1649.6	1647.1	1658.3	1659.6
22.5°	1613.6	1616.5	1616.1	1627.8	1631.2
25°	1577.6	1578.9	1580.6	1594.0	1596.5
27.5°	1537.9	1540.0	1542.9	1555.1	1557.6
30°	1494.4	1497.8	1501.1	1513.7	1517.0
32.5°	1448.4	1451.8	1456.0	1472.3	1473.9
35°	1396.6	1402.9	1408.7	1422.9	1428.8
37.5°	1344.7	1352.7	1358.1	1373.2	1377.8
40°	1290.0	1297.9	1306.7	1322.6	1325.5
42.5°	1232.7	1241.9	1252.3	1266.6	1271.6
45°	1175.0	1185.4	1195.0	1206.8	1212.6
47.5°	1112.7	1123.1	1134.8	1148.2	1152.0
50°	1048.3	1060.4	1073.0	1085.5	1092.2
52.5°	982.2	996.8	1011.1	1024.4	1030.7
55°	917.0	927.9	945.0	958.8	965.1
57.5°	849.2	858.4	873.9	896.5	899.8
60°	780.3	788.6	804.5	822.9	830.4
62.5°	704.2	715.4	732.2	755.6	762.3
65°	630.1	641.0	663.2	689.5	700.4
67.5°	558.6	562.4	590.8	618.4	636.0
70°	474.2	488.4	521.4	555.3	568.7
72.5°	401.4	415.6	452.0	491.7	508.5
75°	319.0	338.7	388.0	434.4	450.8
77.5°	246.7	268.4	329.5	376.3	395.1
80°	172.3	206.1	272.6	325.3	345.8
82.5°	108.3	150.1	221.2	276.4	294.4
85°	55.2	102.0	175.2	231.7	252.1
87.5°	14.6	66.1	136.3	190.3	211.2
90°	0.4	38.1	103.3	155.1	173.9
92.5°	0.4	21.3	76.9	123.4	142.6
95°	0.4	10.0	53.5	97.0	112.1
97.5°	0.4	4.2	36.8	73.2	88.2
100°	0.4	2.1	23.4	53.1	66.1
102.5°	0.8	1.3	14.6	38.1	48.5
105°	0.8	1.3	8.8	25.9	34.7
107.5°	0.8	1.3	5.0	17.6	23.8
110°	1.3	1.3	2.9	10.9	15.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.3	1.3	1.7	7.1	10.5
115°	1.3	1.3	1.7	4.6	6.7
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)