

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: METALUX

Report Number: P894011

Luminaire Tested: 4MB-9HL-ASMF-UNV-L840

Issue Date: 11/11/2024

Test Information

Test Method: LM-79-2019
Report Number: P894011
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2407-185-1)
Test Lab: INNOVATION CENTER
Issue Date: 11/11/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: 4MB-9HL-ASMF-UNV-L840
Description: 9000 Lumen 4FT MICROBAY LINEAR BAY with FROSTED ASYMMETRIC LENS, 80CRI, 4000K CCT
Light Source: -
Ballast/Driver: -

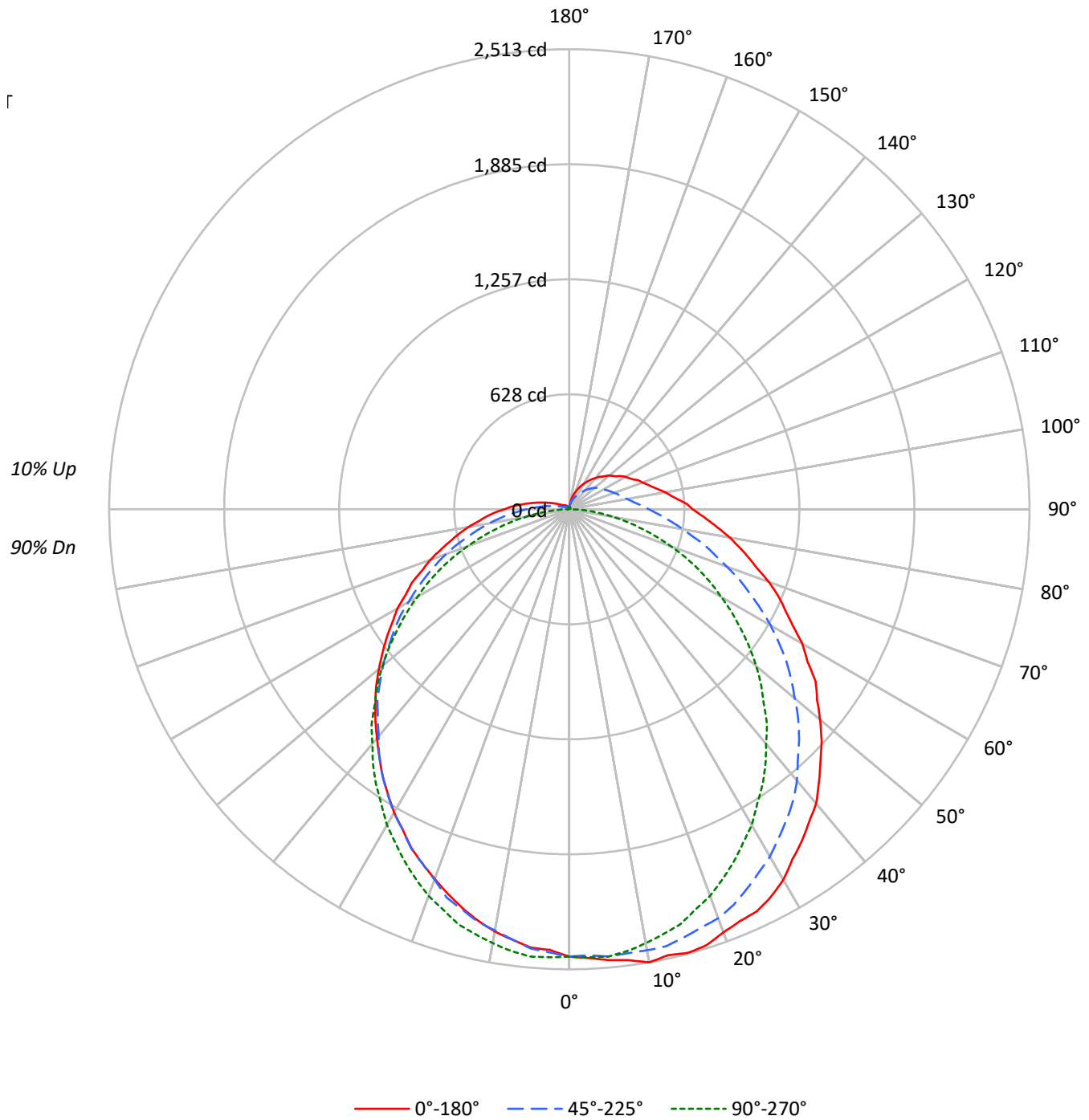
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8401.0 lumens
Efficiency: N/A
Efficacy: 130.5 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.21 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.27' x L: 3.98' x H: 0.12')
CIE Type: Direct

Input Watts (W): 64.4
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 8.94
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	117	117	117	117	113	113	113	113	106	106	106	99	99	99	93	93	93	93	93	93	90
1	105	99	95	90	101	96	92	88	90	87	83	85	82	79	79	77	75	75	75	75	72
2	95	86	79	72	91	83	76	71	78	72	68	73	69	65	69	65	62	62	62	62	59
3	86	75	66	60	83	73	65	58	68	62	56	64	59	54	60	56	52	52	52	52	49
4	79	66	57	50	76	64	56	49	61	53	48	57	51	46	54	49	44	44	44	44	42
5	72	59	50	43	69	57	49	42	54	47	41	51	45	40	48	43	38	38	38	38	36
6	67	53	44	37	64	52	43	37	49	41	36	46	40	35	44	38	34	34	34	34	31
7	62	48	39	33	59	47	38	32	44	37	32	42	36	31	40	34	30	30	30	30	28
8	57	44	35	29	55	43	35	29	41	33	28	39	32	27	37	31	27	27	27	27	25
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	28	24	24	24	24	22
10	50	37	29	24	49	36	29	23	34	28	23	33	27	22	31	26	22	22	22	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	24885	24885	24885	24885	24885
5°	25198	24312	24076	23889	24501
10°	25846	23804	22982	22734	24087
15°	26224	23302	21963	21785	23580
20°	26353	22819	20801	20650	23028
25°	26831	22086	19578	19707	22609
30°	26995	21379	18415	18685	22099
35°	26931	20608	17194	17701	21625
40°	27172	19811	15942	16594	21159
45°	27092	18869	14705	15753	20898
50°	27297	17901	13518	14786	20730
55°	27903	17059	12157	13820	20657
60°	28367	16011	10763	12790	20934
65°	29348	14878	9349	11768	21405
70°	31747	13795	7663	10792	22137
75°	35670	13008	5860	9658	23668
80°	44339	12247	3926	8656	27792
85°	66281	12082	1969	7622	38974

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 90°
 Luminance: 218241 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	231.9	2.8
10°-20°	664.5	7.9
20°-30°	1002.0	11.9
30°-40°	1202.6	14.3
40°-50°	1252.3	14.9
50°-60°	1160.9	13.8
60°-70°	956.0	11.4
70°-80°	689.6	8.2
80°-90°	437.8	5.2
90°-100°	269.9	3.2
100°-110°	180.0	2.1
110°-120°	128.1	1.5
120°-130°	93.9	1.1
130°-140°	64.6	0.8
140°-150°	39.3	0.5
150°-160°	19.5	0.2
160°-170°	7.1	0.1
170°-180°	1.2	0.0
0°-30°	1898.3	22.6
0°-40°	3100.9	36.9
0°-60°	5514.0	65.6
0°-90°	7597.4	90.4
90°-120°	578.0	6.9
90°-150°	775.8	9.2
90°-180°	804.0	9.6
0°-180°	8401.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2444	2444	2444	2444	2444	
5°	2472	2452	2452	2409	2403	237
15°	2508	2420	2346	2263	2255	707
25°	2423	2291	2125	2044	2042	1114
35°	2214	2070	1839	1778	1778	1387
45°	1940	1775	1502	1482	1497	1501
55°	1642	1448	1145	1173	1216	1459
65°	1300	1087	780	860	948	1295
75°	1013	768	410	571	672	1073
85°	771	523	108	330	453	654
90°	673	435	10	235	353	371
95°	600	368	6	158	272	477
105°	470	288	6	65	143	502
115°	386	238	7	30	68	387
125°	314	199	9	24	39	286
135°	252	159	9	18	29	197
145°	193	112	9	13	21	122
155°	132	74	10	9	13	62
165°	77	43	10	6	7	22
175°	11	18	11	5	1	2
180°	7	7	7	7	7	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	2443.5	2443.5	2443.5	2443.5	2443.5	2443.5	2443.5	2443.5	2443.5
2.5°	2453.3	2460.6	2437.4	2452.0	2449.6	2452.0	2422.7	2447.2	2409.3
5°	2471.6	2475.3	2452.0	2460.6	2452.0	2431.3	2409.3	2400.7	2403.2
7.5°	2483.8	2503.4	2445.9	2448.4	2433.7	2411.7	2370.2	2377.5	2372.6
10°	2513.1	2491.1	2445.9	2434.9	2406.8	2383.6	2336.0	2339.6	2342.1
12.5°	2494.8	2489.9	2444.7	2404.4	2376.3	2356.7	2307.9	2295.7	2301.8
15°	2508.2	2487.5	2420.3	2388.5	2345.8	2311.5	2262.7	2254.1	2255.3
17.5°	2496.0	2478.9	2395.8	2351.9	2292.0	2271.2	2224.8	2210.1	2202.8
20°	2459.4	2450.8	2377.5	2301.8	2248.0	2207.7	2151.5	2142.9	2149.1
22.5°	2434.9	2414.2	2340.9	2265.1	2186.9	2151.5	2095.3	2094.1	2095.3
25°	2422.7	2395.8	2290.8	2211.4	2124.6	2092.9	2044.0	2025.7	2041.5
27.5°	2386.1	2361.6	2238.2	2151.5	2055.0	2012.2	1971.9	1968.2	1970.7
30°	2337.2	2289.6	2190.6	2084.3	1991.4	1947.5	1914.5	1890.0	1913.3
32.5°	2267.6	2240.7	2128.3	2012.2	1909.6	1879.0	1846.1	1843.6	1843.6
35°	2213.8	2194.3	2069.6	1948.7	1838.7	1797.2	1777.6	1769.1	1777.6
37.5°	2151.5	2122.2	2007.3	1871.7	1759.3	1723.9	1704.3	1697.0	1703.1
40°	2097.7	2044.0	1934.0	1792.3	1672.6	1640.8	1620.0	1627.4	1633.5
42.5°	2018.3	1987.8	1847.3	1711.7	1598.0	1563.8	1546.7	1552.8	1567.5
45°	1940.1	1912.0	1775.2	1627.4	1501.5	1483.2	1482.0	1478.3	1496.6
47.5°	1869.3	1829.0	1695.8	1544.3	1420.9	1400.1	1402.6	1414.8	1430.7
50°	1787.4	1739.8	1607.8	1455.1	1331.7	1318.3	1328.0	1336.6	1357.4
52.5°	1705.6	1667.7	1527.2	1370.8	1241.3	1231.5	1245.0	1273.1	1285.3
55°	1642.0	1573.6	1447.8	1271.8	1144.8	1146.0	1172.9	1188.8	1215.6
57.5°	1540.6	1489.3	1357.4	1183.9	1054.4	1062.9	1099.6	1126.5	1143.6
60°	1468.5	1403.8	1269.4	1089.8	959.1	972.5	1014.0	1054.4	1083.7
62.5°	1375.7	1319.5	1177.8	996.9	871.1	890.7	937.1	984.7	1005.5
65°	1299.9	1236.4	1087.4	904.1	779.5	802.7	860.1	913.9	948.1
67.5°	1235.2	1169.2	1006.7	818.6	686.6	720.8	788.0	840.6	867.4
70°	1158.2	1081.2	915.1	723.3	590.1	630.4	715.9	777.0	807.6
72.5°	1076.4	1014.0	835.7	635.3	500.9	549.8	643.9	707.4	736.7
75°	1012.8	943.2	768.5	547.3	410.5	469.2	570.6	642.6	672.0
77.5°	948.1	884.5	692.7	466.7	329.9	395.8	505.8	585.2	615.8
80°	890.7	817.3	629.2	400.7	245.6	323.8	444.7	522.9	558.3
82.5°	827.1	763.6	574.2	331.1	174.7	257.8	384.9	470.4	499.7
85°	770.9	704.9	522.9	276.1	107.5	199.1	329.9	417.8	453.3
87.5°	719.6	664.6	475.3	234.6	53.8	151.5	277.3	366.5	406.8
90°	673.2	610.9	434.9	196.7	9.8	110.0	234.6	322.5	353.1
92.5°	643.9	569.3	402.0	172.3	6.1	78.2	195.5	282.2	317.7
95°	599.9	533.9	367.7	153.9	6.1	52.5	157.6	241.9	272.4
97.5°	562.0	500.9	343.3	142.9	4.9	35.4	129.5	202.8	234.6
100°	532.7	475.3	321.3	133.2	6.1	25.7	102.6	172.3	200.4
102.5°	499.7	447.2	304.2	127.1	6.1	18.3	80.6	145.4	171.0
105°	470.4	423.9	288.3	121.0	6.1	15.9	64.8	119.7	142.9
107.5°	448.4	399.5	274.9	117.3	6.1	15.9	51.3	97.7	117.3
110°	426.4	380.0	261.5	113.6	6.1	14.7	40.3	80.6	97.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	411.7	361.6	249.2	110.0	7.3	14.7	33.0	67.2	80.6
115°	386.1	345.8	238.2	108.7	7.3	13.4	30.5	55.0	68.4
117.5°	367.7	331.1	227.2	105.1	7.3	13.4	29.3	45.2	55.0
120°	354.3	314.0	217.5	101.4	7.3	12.2	26.9	40.3	46.4
122.5°	337.2	298.1	208.9	99.0	7.3	12.2	25.7	37.9	41.5
125°	314.0	283.4	199.1	94.1	8.6	12.2	24.4	35.4	39.1
127.5°	299.3	270.0	191.8	88.0	8.6	11.0	23.2	33.0	36.7
130°	287.1	255.3	183.3	81.9	8.6	11.0	22.0	30.5	34.2
132.5°	268.8	240.7	171.0	77.0	8.6	9.8	19.5	28.1	31.8
135°	251.7	228.5	158.8	72.1	8.6	9.8	18.3	26.9	29.3
137.5°	240.7	216.2	147.8	67.2	8.6	8.6	17.1	24.4	26.9
140°	222.4	202.8	135.6	62.3	8.6	8.6	15.9	23.2	24.4
142.5°	208.9	189.4	124.6	57.4	8.6	8.6	14.7	20.8	23.2
145°	193.0	175.9	112.4	52.5	8.6	7.3	13.4	19.5	20.8
147.5°	178.4	160.0	102.6	48.9	8.6	7.3	12.2	17.1	18.3
150°	163.7	144.2	92.9	45.2	8.6	7.3	11.0	14.7	17.1
152.5°	147.8	124.6	83.1	41.5	8.6	7.3	9.8	13.4	14.7
155°	131.9	108.7	74.5	37.9	9.8	7.3	8.6	11.0	13.4
157.5°	118.5	94.1	66.0	34.2	9.8	6.1	8.6	9.8	11.0
160°	102.6	80.6	58.6	30.5	9.8	6.1	7.3	8.6	9.8
162.5°	90.4	67.2	51.3	28.1	9.8	6.1	7.3	7.3	8.6
165°	77.0	56.2	42.8	25.7	9.8	6.1	6.1	6.1	7.3
167.5°	62.3	44.0	35.4	23.2	9.8	6.1	6.1	4.9	6.1
170°	46.4	33.0	29.3	20.8	9.8	6.1	4.9	3.7	4.9
172.5°	20.8	25.7	23.2	18.3	11.0	6.1	4.9	3.7	2.4
175°	11.0	18.3	18.3	15.9	11.0	6.1	4.9	3.7	1.2
177.5°	8.6	11.0	13.4	13.4	11.0	7.3	4.9	2.4	1.2
180°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3



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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	21.53	23.01	22.04	23.51	24.05	20.50	21.98	21.01	22.48	23.03
	3H	23.62	24.97	24.14	25.48	26.06	22.37	23.72	22.89	24.23	24.82
	4H	24.56	25.84	25.10	26.37	26.96	23.12	24.40	23.66	24.92	25.52
	6H	25.48	26.67	26.03	27.21	27.82	23.75	24.94	24.31	25.48	26.09
	8H	25.91	27.05	26.47	27.61	28.23	24.01	25.15	24.57	25.71	26.33
	12H	26.33	27.42	26.90	27.98	28.63	24.24	25.33	24.81	25.89	26.54
4H	2H	22.02	23.30	22.56	23.83	24.42	21.07	22.34	21.61	22.87	23.47
	3H	24.34	25.43	24.89	26.00	26.61	23.13	24.21	23.68	24.78	25.40
	4H	25.45	26.45	26.02	27.03	27.67	23.98	24.97	24.55	25.55	26.20
	6H	26.56	27.43	27.15	28.04	28.70	24.73	25.61	25.33	26.22	26.88
	8H	27.08	27.91	27.68	28.51	29.19	25.05	25.88	25.65	26.48	27.15
	12H	27.61	28.36	28.23	28.99	29.67	25.34	26.09	25.96	26.72	27.40
8H	4H	25.71	26.53	26.30	27.14	27.81	24.32	25.14	24.91	25.75	26.42
	6H	26.99	27.69	27.62	28.34	29.02	25.20	25.90	25.83	26.55	27.23
	8H	27.66	28.29	28.30	28.94	29.64	25.60	26.23	26.24	26.89	27.58
	12H	28.36	28.93	29.01	29.57	30.33	25.99	26.55	26.63	27.19	27.95
12H	4H	25.73	26.48	26.34	27.11	27.79	24.38	25.13	25.00	25.76	26.44
	6H	27.05	27.68	27.69	28.33	29.02	25.31	25.94	25.95	26.60	27.29
	8H	27.79	28.35	28.43	28.99	29.75	25.77	26.34	26.42	26.98	27.74