

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: P894003

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

Issue Date: 11/11/2024

**Test Information**

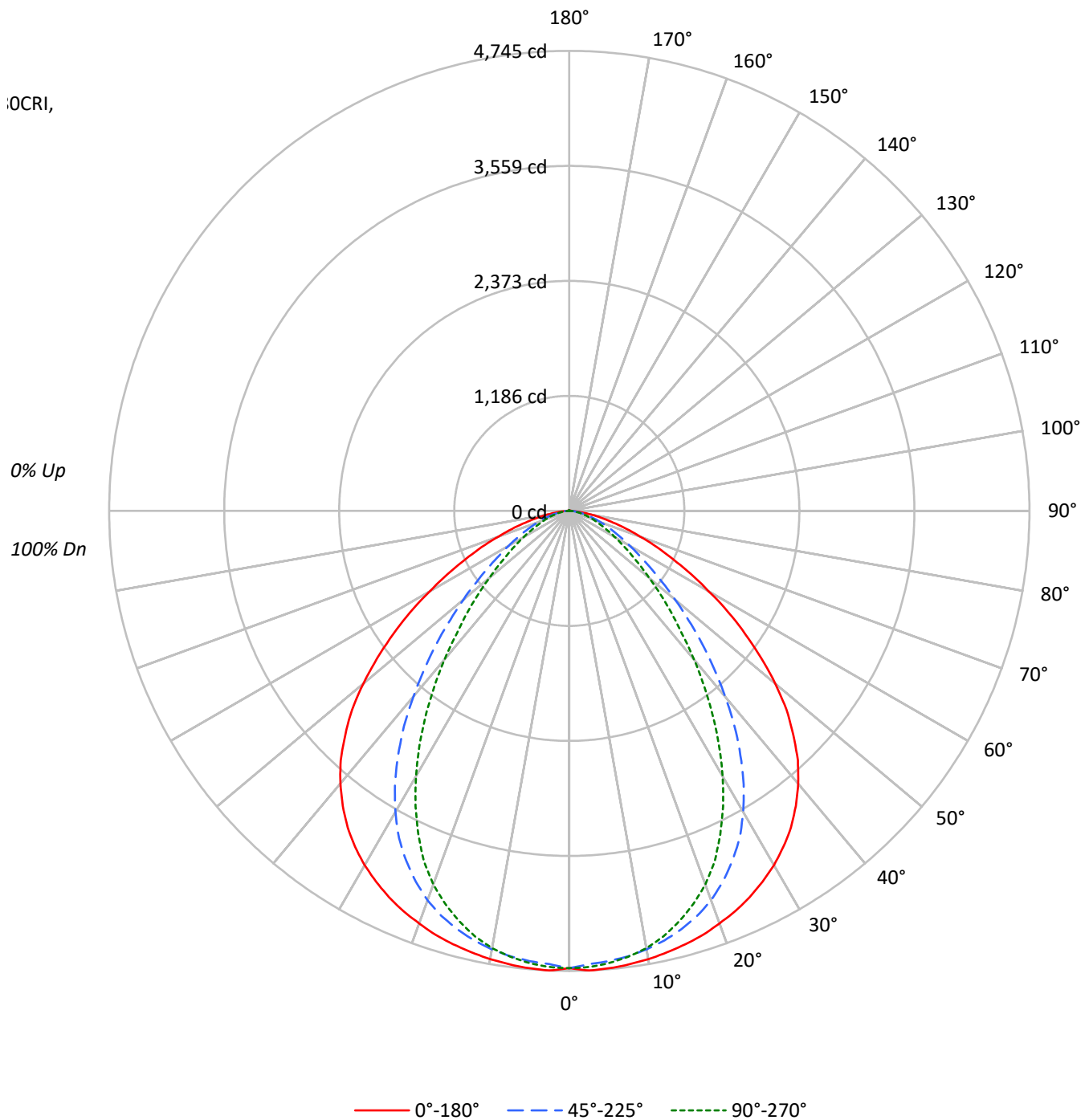
Test Method: LM-79-2019  
Report Number: P894003  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2404-077-19)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/11/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: METALUX  
Catalog Number: 4MB-9HL-AOL-UNV-L840  
Description: 9000 Lumen 4FT MICROBAY LINEAR BAY with AISLE OPTICS WITH CLEAR LENS NO UPLIGHT, 8  
4000K CCT  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9323.9 lumens  
Efficiency: N/A  
Efficacy: 144.8 lumens/watt  
Spacing Criteria (0/90/45): 1.32 / 1.05 / 1.16  
Luminous Opening: Rectangular (W 0.27' x L: 3.98' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 64.4  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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

TEST NUMBER: P894003  
CATALOG NUMBER: 4MB-9HL-AOL-UNV-L840

### Luminous Intensity Polar Plot





TEST NUMBER: P894003

CATALOG NUMBER: 4MB-9HL-AOL-UNV-L840

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102	100
1	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	89	89	89	89	87
2	102	95	90	85	100	93	88	84	90	86	82	87	83	80	84	81	78	78	78	78	76
3	95	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68	68	68	68	67
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	61	61	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	54	54	54	52
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	52	48	48	48	48	46
7	70	58	50	45	69	57	50	45	56	49	44	55	48	44	53	48	44	44	44	44	42
8	66	54	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	40	40	40	38
9	62	49	42	37	61	49	42	37	48	41	37	47	41	36	46	40	36	36	36	36	34
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	33	33	33	32

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	48039	48039	48039
5°	48414	47658	47869
10°	48548	47494	47368
15°	48787	47091	46204
20°	49075	46328	44433
25°	49422	44735	41373
30°	49631	42163	37192
35°	49553	38263	32112
40°	48823	33244	26630
45°	47046	27894	21443
50°	43932	22625	17024
55°	39354	18066	13633
60°	33848	14743	11144
65°	28416	12259	9217
70°	23196	10303	7909
75°	18399	8720	6733
80°	14316	7460	5812
85°	11042	6660	5025

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 47046 cd/sqm



TEST NUMBER: P894003  
 CATALOG NUMBER: 4MB-9HL-AOL-UNV-L840

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	446.2	4.8
10°-20°	1266.6	13.6
20°-30°	1843.1	19.8
30°-40°	1981.5	21.3
40°-50°	1654.8	17.7
50°-60°	1111.5	11.9
60°-70°	631.4	6.8
70°-80°	287.7	3.1
80°-90°	73.4	0.8
90°-100°	8.2	0.1
100°-110°	5.9	0.1
110°-120°	3.5	0.0
120°-130°	2.4	0.0
130°-140°	2.1	0.0
140°-150°	2.0	0.0
150°-160°	1.7	0.0
160°-170°	1.3	0.0
170°-180°	0.5	0.0
0°-30°	3556.0	38.1
0°-40°	5537.4	59.4
0°-60°	8303.8	89.1
0°-90°	9296.3	99.7
90°-120°	17.6	0.2
90°-150°	24.1	0.3
90°-180°	28.0	0.3
0°-180°	9323.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4717	4717	4717	4717	4717	
5°	4736	4723	4662	4699	4682	451
15°	4627	4590	4466	4431	4382	1308
25°	4398	4271	3981	3774	3682	2027
35°	3986	3666	3078	2709	2583	2487
45°	3266	2694	1937	1584	1489	2511
55°	2216	1594	1018	816	768	1981
65°	1179	811	509	408	382	1185
75°	468	338	222	180	171	514
85°	94	77	57	46	43	107
90°	12	10	8	6	6	11
95°	15	10	6	4	4	12
105°	11	8	5	3	2	12
115°	6	5	3	2	2	6
125°	4	3	3	2	2	3
135°	3	3	3	3	3	2
145°	3	3	4	4	3	2
155°	3	4	4	4	4	1
165°	4	4	5	6	6	1
175°	4	5	6	6	6	0
180°	6	6	6	6	6	



TEST NUMBER: P894003

CATALOG NUMBER: 4MB-9HL-AOL-UNV-L840

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4717.0	4717.0	4717.0	4717.0	4717.0
2.5°	4745.0	4732.0	4678.7	4719.8	4708.6
5°	4735.7	4722.6	4661.8	4699.2	4682.4
7.5°	4717.9	4704.8	4633.8	4660.9	4638.4
10°	4694.6	4675.8	4592.6	4600.1	4580.5
12.5°	4663.7	4635.6	4537.4	4524.3	4493.5
15°	4627.2	4589.8	4466.4	4430.8	4382.2
17.5°	4585.1	4530.9	4380.3	4305.5	4252.2
20°	4528.1	4458.9	4274.7	4155.9	4099.8
22.5°	4469.2	4374.7	4138.1	3981.0	3913.7
25°	4398.1	4270.9	3981.0	3774.3	3681.8
27.5°	4313.0	4154.0	3804.3	3544.3	3433.9
30°	4220.4	4016.6	3585.4	3286.2	3162.7
32.5°	4109.1	3854.8	3346.0	3003.8	2875.6
35°	3985.7	3665.9	3077.6	2709.2	2582.9
37.5°	3836.1	3447.0	2799.0	2408.1	2286.5
40°	3672.4	3221.7	2500.6	2108.8	2003.1
42.5°	3488.2	2961.7	2210.7	1833.9	1719.8
45°	3266.5	2694.2	1936.7	1584.2	1488.8
47.5°	3040.2	2398.7	1663.7	1343.8	1275.6
50°	2772.8	2121.0	1428.0	1144.6	1074.5
52.5°	2495.0	1847.9	1208.2	971.6	909.0
55°	2216.4	1593.5	1017.5	815.5	767.8
57.5°	1945.2	1359.7	855.7	689.2	648.1
60°	1661.8	1154.0	723.8	580.7	547.1
62.5°	1418.7	975.4	607.9	489.1	461.0
65°	1179.2	810.8	508.7	407.7	382.5
67.5°	978.2	669.6	421.8	338.5	317.0
70°	779.0	545.2	346.0	279.6	265.6
72.5°	621.0	434.9	280.6	227.2	213.2
75°	467.6	337.6	221.6	180.5	171.1
77.5°	351.6	256.2	171.1	140.3	130.0
80°	244.1	183.3	127.2	103.8	99.1
82.5°	156.2	126.2	87.9	73.9	68.3
85°	94.5	76.7	57.0	45.8	43.0
87.5°	44.9	37.4	29.0	22.4	20.6
90°	12.2	10.3	7.5	6.5	5.6
92.5°	14.0	10.3	6.5	4.7	3.7
95°	15.0	10.3	6.5	3.7	3.7
97.5°	15.0	11.2	5.6	3.7	2.8
100°	14.0	10.3	5.6	3.7	2.8
102.5°	12.2	9.4	4.7	2.8	2.8
105°	11.2	8.4	4.7	2.8	1.9
107.5°	9.4	7.5	3.7	2.8	1.9
110°	8.4	6.5	3.7	2.8	1.9



TEST NUMBER: P894003

CATALOG NUMBER: 4MB-9HL-AOL-UNV-L840

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	6.5	5.6	3.7	2.8	1.9
115°	5.6	4.7	2.8	1.9	1.9
117.5°	4.7	3.7	2.8	1.9	1.9
120°	4.7	3.7	2.8	1.9	1.9
122.5°	3.7	3.7	2.8	1.9	1.9
125°	3.7	2.8	2.8	1.9	1.9
127.5°	2.8	2.8	2.8	1.9	1.9
130°	2.8	2.8	2.8	2.8	1.9
132.5°	2.8	2.8	2.8	2.8	1.9
135°	2.8	2.8	2.8	2.8	2.8
137.5°	2.8	2.8	2.8	2.8	2.8
140°	2.8	2.8	2.8	2.8	2.8
142.5°	2.8	2.8	3.7	2.8	2.8
145°	2.8	2.8	3.7	3.7	2.8
147.5°	2.8	2.8	3.7	3.7	3.7
150°	2.8	2.8	3.7	3.7	3.7
152.5°	2.8	3.7	3.7	3.7	3.7
155°	2.8	3.7	3.7	3.7	3.7
157.5°	3.7	3.7	3.7	4.7	4.7
160°	3.7	3.7	4.7	4.7	4.7
162.5°	3.7	3.7	4.7	4.7	4.7
165°	3.7	3.7	4.7	5.6	5.6
167.5°	3.7	4.7	4.7	5.6	5.6
170°	3.7	4.7	4.7	5.6	5.6
172.5°	3.7	4.7	5.6	5.6	5.6
175°	3.7	4.7	5.6	5.6	5.6
177.5°	4.7	4.7	5.6	5.6	5.6
180°	5.6	5.6	5.6	5.6	5.6



TEST NUMBER: P894003  
 CATALOG NUMBER: 4MB-9HL-AOL-UNV-L840

**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	23.75	25.19	24.12	25.51	25.83	18.43	19.87	18.80	20.19	20.51
	3H	25.07	26.35	25.45	26.68	27.05	19.44	20.72	19.83	21.06	21.43
	4H	25.49	26.68	25.89	27.04	27.43	19.78	20.98	20.19	21.33	21.72
	6H	25.75	26.85	26.17	27.22	27.62	20.01	21.11	20.43	21.49	21.89
	8H	25.81	26.86	26.24	27.25	27.66	20.08	21.13	20.51	21.52	21.93
	12H	25.84	26.84	26.28	27.23	27.67	20.12	21.12	20.56	21.51	21.95
4H	2H	23.75	24.94	24.15	25.30	25.69	19.08	20.27	19.48	20.63	21.02
	3H	25.22	26.20	25.64	26.61	27.02	20.27	21.25	20.69	21.66	22.07
	4H	25.73	26.61	26.17	27.04	27.48	20.69	21.57	21.13	21.99	22.44
	6H	26.10	26.86	26.56	27.31	27.78	21.00	21.77	21.47	22.22	22.69
	8H	26.20	26.91	26.67	27.36	27.84	21.10	21.81	21.57	22.26	22.74
	12H	26.27	26.90	26.75	27.39	27.87	21.16	21.80	21.65	22.28	22.76
8H	4H	25.71	26.42	26.18	26.87	27.35	21.03	21.74	21.50	22.19	22.67
	6H	26.13	26.72	26.63	27.21	27.70	21.43	22.01	21.93	22.51	23.00
	8H	26.27	26.80	26.79	27.31	27.81	21.57	22.09	22.09	22.61	23.11
	12H	26.39	26.85	26.90	27.35	27.93	21.68	22.15	22.20	22.65	23.22
12H	4H	25.68	26.31	26.17	26.80	27.28	21.08	21.71	21.56	22.20	22.68
	6H	26.09	26.62	26.62	27.14	27.64	21.49	22.02	22.01	22.54	23.03
	8H	26.27	26.73	26.79	27.23	27.81	21.68	22.15	22.20	22.65	23.22