

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: P893259

Luminaire Tested: 4MB-2SL-ASMF-UNV-L840

Issue Date: 11/11/2024

**Test Information**

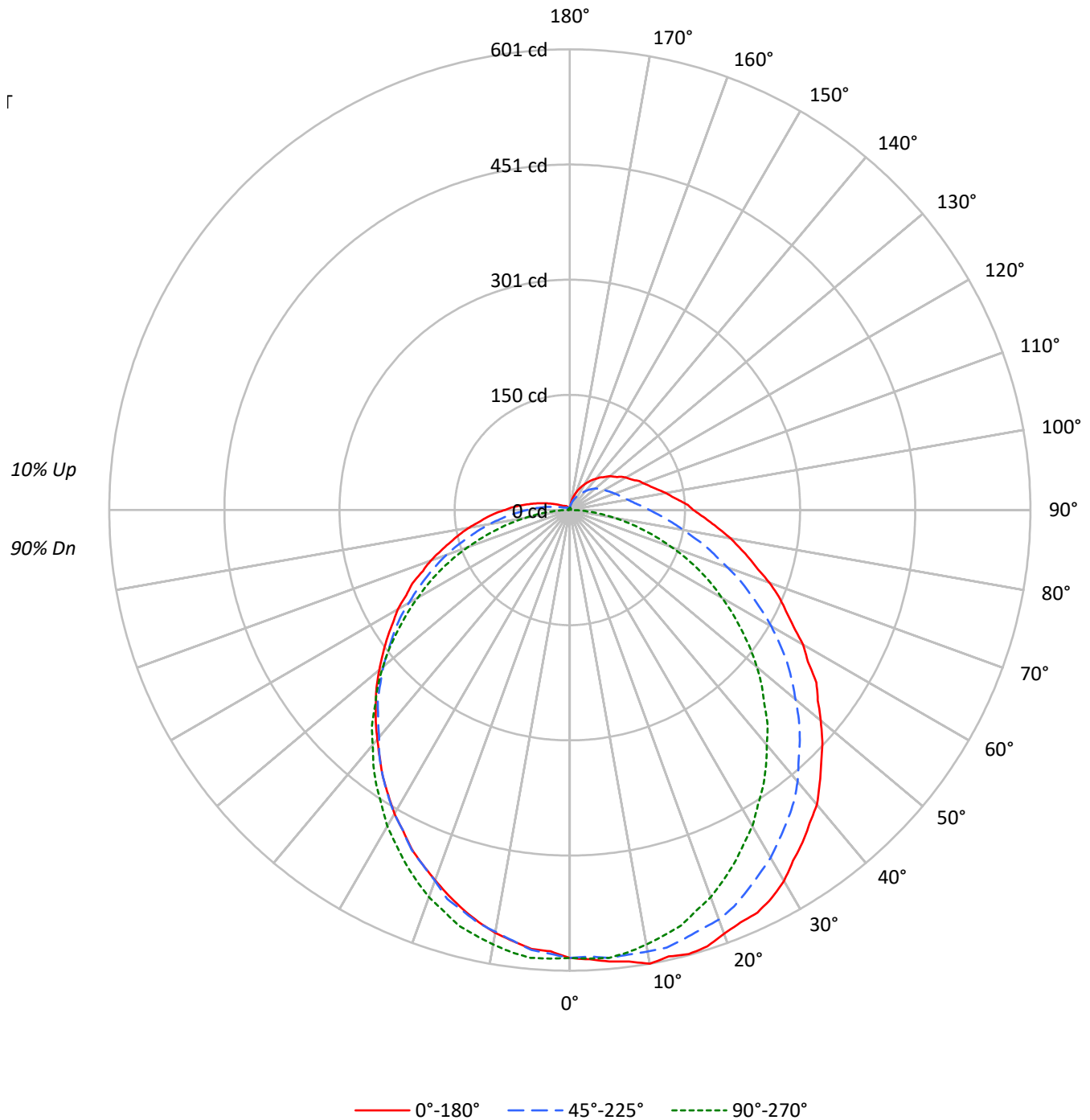
Test Method: LM-79-2019  
Report Number: P893259  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2407-185-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/11/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: METALUX  
Catalog Number: 4MB-2SL-ASMF-UNV-L840  
Description: 2000 Lumen 4FT MICROBAY LINEAR BAY with FROSTED ASYMMETRIC LENS, 80CRI, 4000K CCT  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2009.0 lumens  
Efficiency: N/A  
Efficacy: 145.6 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): 13.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.996  
Total Harmonic Distortion (THDi): 5.92  
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				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°	5951	5951	5951	5951	5951
5°	6026	5814	5758	5713	5859
10°	6181	5692	5496	5436	5760
15°	6271	5573	5253	5210	5639
20°	6302	5457	4974	4938	5507
25°	6417	5281	4682	4713	5407
30°	6455	5113	4404	4468	5284
35°	6440	4928	4112	4233	5171
40°	6497	4738	3812	3968	5059
45°	6479	4512	3517	3767	4998
50°	6527	4281	3233	3536	4957
55°	6673	4079	2907	3305	4940
60°	6784	3829	2574	3059	5007
65°	7019	3557	2236	2814	5118
70°	7593	3298	1832	2581	5293
75°	8530	3111	1402	2309	5660
80°	10603	2929	938	2069	6646
85°	15854	2888	471	1823	9320

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 90°  
 Luminance: 52194 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	55.4	2.8
10°-20°	158.9	7.9
20°-30°	239.6	11.9
30°-40°	287.6	14.3
40°-50°	299.5	14.9
50°-60°	277.6	13.8
60°-70°	228.6	11.4
70°-80°	164.9	8.2
80°-90°	104.7	5.2
90°-100°	64.5	3.2
100°-110°	43.0	2.1
110°-120°	30.6	1.5
120°-130°	22.5	1.1
130°-140°	15.4	0.8
140°-150°	9.4	0.5
150°-160°	4.7	0.2
160°-170°	1.7	0.1
170°-180°	0.3	0.0
0°-30°	454.0	22.6
0°-40°	741.6	36.9
0°-60°	1318.6	65.6
0°-90°	1816.8	90.4
90°-120°	138.2	6.9
90°-150°	185.5	9.2
90°-180°	192.0	9.6
0°-180°	2009.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	584	584	584	584	584	
5°	591	586	586	576	575	57
15°	600	579	561	541	539	169
25°	579	548	508	489	488	266
35°	529	495	440	425	425	332
45°	464	424	359	354	358	359
55°	393	346	274	280	291	349
65°	311	260	186	206	227	310
75°	242	184	98	136	161	257
85°	184	125	26	79	108	156
90°	161	104	2	56	84	89
95°	144	88	2	38	65	114
105°	112	69	2	16	34	120
115°	92	57	2	7	16	92
125°	75	48	2	6	9	68
135°	60	38	2	4	7	47
145°	46	27	2	3	5	29
155°	32	18	2	2	3	15
165°	18	10	2	2	2	5
175°	3	4	3	1	0	1
180°	2	2	2	2	2	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	584.3	584.3	584.3	584.3	584.3	584.3	584.3	584.3	584.3
2.5°	586.7	588.4	582.9	586.4	585.8	586.4	579.4	585.2	576.2
5°	591.1	591.9	586.4	588.4	586.4	581.4	576.2	574.1	574.7
7.5°	594.0	598.6	584.9	585.5	582.0	576.7	566.8	568.6	567.4
10°	601.0	595.7	584.9	582.3	575.6	570.0	558.6	559.5	560.1
12.5°	596.6	595.4	584.6	575.0	568.3	563.6	551.9	549.0	550.4
15°	599.8	594.9	578.8	571.2	561.0	552.8	541.1	539.0	539.3
17.5°	596.9	592.8	572.9	562.4	548.1	543.1	532.0	528.5	526.8
20°	588.1	586.1	568.6	550.4	537.6	527.9	514.5	512.5	513.9
22.5°	582.3	577.3	559.8	541.7	523.0	514.5	501.1	500.8	501.1
25°	579.4	572.9	547.8	528.8	508.1	500.5	488.8	484.4	488.2
27.5°	570.6	564.8	535.2	514.5	491.4	481.2	471.6	470.7	471.3
30°	558.9	547.5	523.9	498.4	476.2	465.7	457.8	452.0	457.5
32.5°	542.3	535.8	509.0	481.2	456.7	449.4	441.5	440.9	440.9
35°	529.4	524.7	494.9	466.0	439.7	429.8	425.1	423.1	425.1
37.5°	514.5	507.5	480.0	447.6	420.7	412.2	407.6	405.8	407.3
40°	501.6	488.8	462.5	428.6	400.0	392.4	387.4	389.2	390.6
42.5°	482.7	475.4	441.8	409.3	382.2	374.0	369.9	371.3	374.8
45°	464.0	457.2	424.5	389.2	359.1	354.7	354.4	353.5	357.9
47.5°	447.0	437.4	405.5	369.3	339.8	334.8	335.4	338.3	342.1
50°	427.4	416.0	384.5	348.0	318.5	315.2	317.6	319.6	324.6
52.5°	407.9	398.8	365.2	327.8	296.8	294.5	297.7	304.4	307.4
55°	392.7	376.3	346.2	304.1	273.8	274.1	280.5	284.3	290.7
57.5°	368.4	356.2	324.6	283.1	252.1	254.2	262.9	269.4	273.5
60°	351.2	335.7	303.6	260.6	229.4	232.6	242.5	252.1	259.2
62.5°	329.0	315.5	281.6	238.4	208.3	213.0	224.1	235.5	240.5
65°	310.9	295.7	260.0	216.2	186.4	192.0	205.7	218.5	226.7
67.5°	295.4	279.6	240.7	195.8	164.2	172.4	188.4	201.0	207.4
70°	277.0	258.6	218.8	173.0	141.1	150.8	171.2	185.8	193.1
72.5°	257.4	242.5	199.8	151.9	119.8	131.5	154.0	169.2	176.2
75°	242.2	225.6	183.8	130.9	98.2	112.2	136.4	153.7	160.7
77.5°	226.7	211.5	165.7	111.6	78.9	94.7	121.0	139.9	147.3
80°	213.0	195.5	150.5	95.8	58.7	77.4	106.3	125.0	133.5
82.5°	197.8	182.6	137.3	79.2	41.8	61.6	92.0	112.5	119.5
85°	184.4	168.6	125.0	66.0	25.7	47.6	78.9	99.9	108.4
87.5°	172.1	158.9	113.7	56.1	12.9	36.2	66.3	87.6	97.3
90°	161.0	146.1	104.0	47.0	2.3	26.3	56.1	77.1	84.4
92.5°	154.0	136.1	96.1	41.2	1.5	18.7	46.7	67.5	76.0
95°	143.5	127.7	87.9	36.8	1.5	12.6	37.7	57.8	65.2
97.5°	134.4	119.8	82.1	34.2	1.2	8.5	31.0	48.5	56.1
100°	127.4	113.7	76.8	31.8	1.5	6.1	24.5	41.2	47.9
102.5°	119.5	106.9	72.7	30.4	1.5	4.4	19.3	34.8	40.9
105°	112.5	101.4	69.0	28.9	1.5	3.8	15.5	28.6	34.2
107.5°	107.2	95.5	65.7	28.0	1.5	3.8	12.3	23.4	28.0
110°	102.0	90.9	62.5	27.2	1.5	3.5	9.6	19.3	23.4



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	98.5	86.5	59.6	26.3	1.8	3.5	7.9	16.1	19.3
115°	92.3	82.7	57.0	26.0	1.8	3.2	7.3	13.1	16.4
117.5°	87.9	79.2	54.3	25.1	1.8	3.2	7.0	10.8	13.1
120°	84.7	75.1	52.0	24.2	1.8	2.9	6.4	9.6	11.1
122.5°	80.6	71.3	50.0	23.7	1.8	2.9	6.1	9.1	9.9
125°	75.1	67.8	47.6	22.5	2.0	2.9	5.8	8.5	9.3
127.5°	71.6	64.6	45.9	21.0	2.0	2.6	5.6	7.9	8.8
130°	68.7	61.1	43.8	19.6	2.0	2.6	5.3	7.3	8.2
132.5°	64.3	57.6	40.9	18.4	2.0	2.3	4.7	6.7	7.6
135°	60.2	54.6	38.0	17.2	2.0	2.3	4.4	6.4	7.0
137.5°	57.6	51.7	35.4	16.1	2.0	2.0	4.1	5.8	6.4
140°	53.2	48.5	32.4	14.9	2.0	2.0	3.8	5.6	5.8
142.5°	50.0	45.3	29.8	13.7	2.0	2.0	3.5	5.0	5.6
145°	46.2	42.1	26.9	12.6	2.0	1.8	3.2	4.7	5.0
147.5°	42.7	38.3	24.5	11.7	2.0	1.8	2.9	4.1	4.4
150°	39.2	34.5	22.2	10.8	2.0	1.8	2.6	3.5	4.1
152.5°	35.4	29.8	19.9	9.9	2.0	1.8	2.3	3.2	3.5
155°	31.6	26.0	17.8	9.1	2.3	1.8	2.0	2.6	3.2
157.5°	28.3	22.5	15.8	8.2	2.3	1.5	2.0	2.3	2.6
160°	24.5	19.3	14.0	7.3	2.3	1.5	1.8	2.0	2.3
162.5°	21.6	16.1	12.3	6.7	2.3	1.5	1.8	1.8	2.0
165°	18.4	13.4	10.2	6.1	2.3	1.5	1.5	1.5	1.8
167.5°	14.9	10.5	8.5	5.6	2.3	1.5	1.5	1.2	1.5
170°	11.1	7.9	7.0	5.0	2.3	1.5	1.2	0.9	1.2
172.5°	5.0	6.1	5.6	4.4	2.6	1.5	1.2	0.9	0.6
175°	2.6	4.4	4.4	3.8	2.6	1.5	1.2	0.9	0.3
177.5°	2.0	2.6	3.2	3.2	2.6	1.8	1.2	0.6	0.3
180°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8



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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	16.56	18.04	17.07	18.54	19.08	15.53	17.01	16.04	17.51	18.05
	3H	18.65	19.99	19.17	20.51	21.09	17.40	18.75	17.92	19.26	19.84
	4H	19.59	20.87	20.13	21.40	21.99	18.15	19.43	18.69	19.95	20.55
	6H	20.51	21.70	21.06	22.24	22.85	18.78	19.97	19.33	20.51	21.12
	8H	20.94	22.08	21.50	22.64	23.26	19.04	20.18	19.60	20.74	21.36
	12H	21.36	22.45	21.93	23.01	23.66	19.27	20.36	19.84	20.92	21.56
4H	2H	17.05	18.33	17.59	18.86	19.45	16.09	17.37	16.63	17.90	18.50
	3H	19.37	20.46	19.92	21.02	21.64	18.15	19.24	18.71	19.81	20.43
	4H	20.48	21.48	21.05	22.05	22.70	19.01	20.00	19.58	20.58	21.23
	6H	21.59	22.46	22.18	23.07	23.73	19.76	20.64	20.35	21.25	21.91
	8H	22.11	22.94	22.71	23.54	24.22	20.08	20.90	20.67	21.51	22.18
	12H	22.64	23.39	23.26	24.02	24.70	20.37	21.12	20.99	21.75	22.43
8H	4H	20.74	21.56	21.33	22.17	22.84	19.35	20.17	19.94	20.78	21.45
	6H	22.02	22.72	22.65	23.37	24.05	20.23	20.93	20.86	21.58	22.26
	8H	22.69	23.32	23.33	23.97	24.67	20.63	21.26	21.27	21.91	22.61
	12H	23.39	23.96	24.03	24.60	25.36	21.02	21.58	21.66	22.22	22.98
12H	4H	20.76	21.51	21.37	22.14	22.82	19.41	20.16	20.03	20.79	21.47
	6H	22.08	22.71	22.72	23.36	24.05	20.34	20.97	20.98	21.62	22.32
	8H	22.82	23.38	23.46	24.02	24.78	20.80	21.37	21.44	22.01	22.77