

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: METALUX

Report Number: P381710

Luminaire Tested: **BMK-70-MFL-UNV-L850-CD-U**

Issue Date: 2/4/2020

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.

**Test Information**

Test Method: LM-79-08  
Report Number: P381710  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1908-468-5)  
Test Lab: INNOVATIONS CENTER(G2)  
Issue Date: 2/4/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: BMK-70-MFL-UNV-L850-CD-U  
Description: BENCHMARK HIGHBAY LED FIXTURE WITH MEDIUM FROSTED LENS

Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.    Condition    Description

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 68214.7 lumens  
Efficiency: N/A  
Efficacy: 136.2 lumens/watt  
Spacing Criteria (0/90/45): 1.36 / 1.36 / 1.38  
Luminous Opening: Vertical Cylinder (Dia: 1.33' x H: 0.12')  
CIE Type: Direct

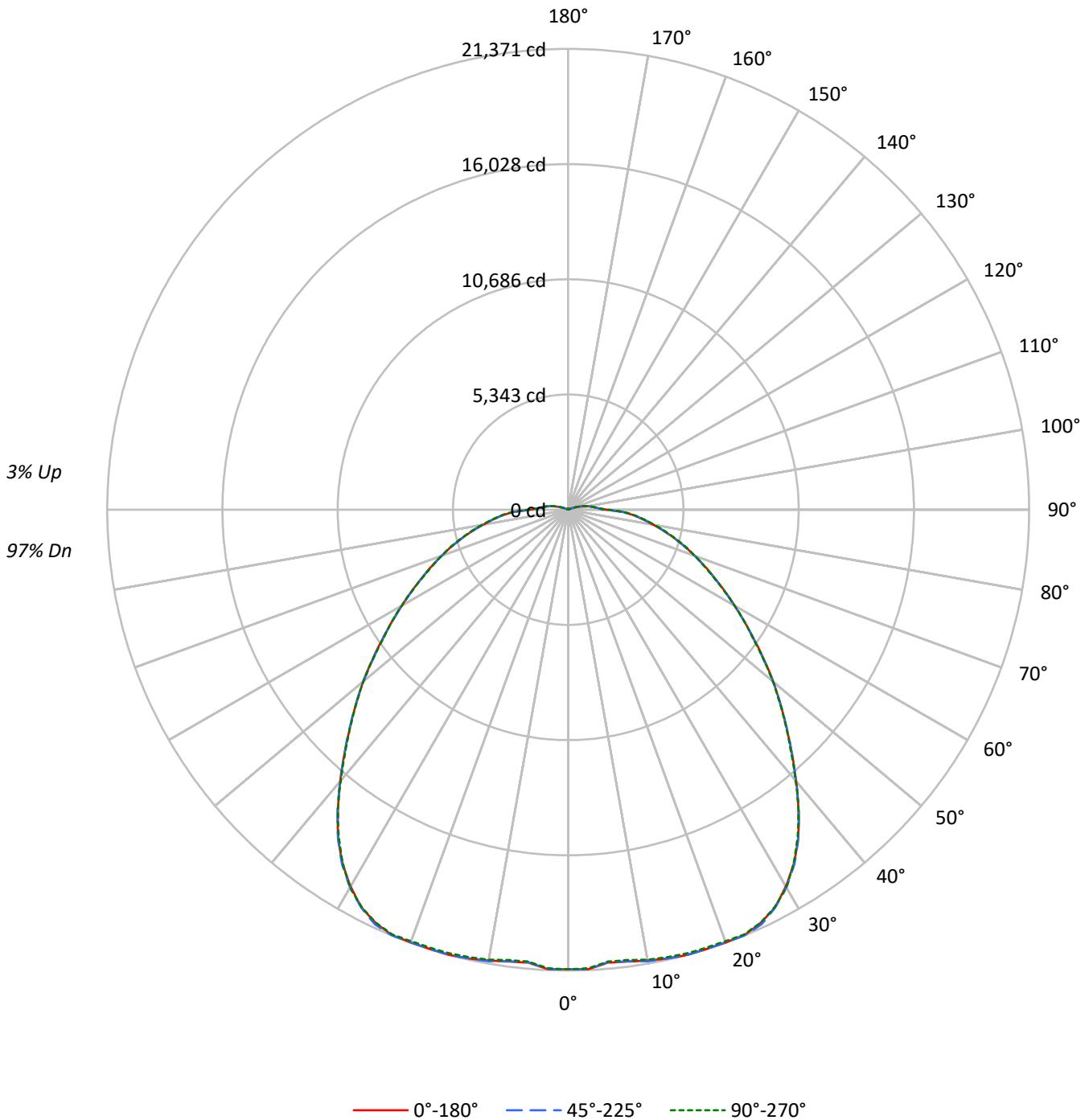
Input Watts (W): 500.7  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0
RCR																		
0	118	118	118	118	115	115	115	115	109	109	109	104	104	104	99	99	99	97
1	107	101	97	92	104	99	95	91	94	90	87	89	87	84	85	83	81	78
2	97	88	81	75	94	86	79	74	82	76	71	78	73	69	75	71	67	65
3	88	77	69	62	85	76	68	61	72	65	60	69	63	58	66	61	57	55
4	81	69	60	53	78	67	59	52	64	57	51	61	55	50	59	53	49	47
5	74	61	52	45	72	60	51	45	57	50	44	55	49	43	53	47	43	40
6	69	55	46	40	67	54	46	39	52	44	39	50	43	38	48	42	38	35
7	64	50	41	35	62	49	41	35	47	40	34	46	39	34	44	38	33	31
8	59	46	37	31	58	45	37	31	43	36	31	42	35	30	40	34	30	28
9	55	42	34	28	54	41	33	28	40	33	28	39	32	27	37	31	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°	164350	164350	164350
5°	161559	161428	161208
10°	162862	163104	162521
15°	165360	165338	164784
20°	167974	167940	167478
25°	170402	171014	170275
30°	168096	168477	168513
35°	161592	161604	161131
40°	150460	150420	150080
45°	139447	139628	139308
50°	130342	130237	130087
55°	121072	120759	120546
60°	113893	113801	113893
65°	108775	108545	108109
70°	105958	105716	106031
75°	104744	104832	105807
80°	105849	106797	107782
85°	114562	115101	117084



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	2019.5	3.0
10°-20°	6044.2	8.9
20°-30°	9712.4	14.2
30°-40°	11563.5	17.0
40°-50°	11076.7	16.2
50°-60°	9450.4	13.9
60°-70°	7433.0	10.9
70°-80°	5394.6	7.9
80°-90°	3296.6	4.8
90°-100°	1390.9	2.0
100°-110°	624.4	0.9
110°-120°	94.5	0.1
120°-130°	28.6	0.0
130°-140°	31.8	0.0
140°-150°	27.0	0.0
150°-160°	14.9	0.0
160°-170°	8.6	0.0
170°-180°	2.9	0.0
0°-30°	17776.1	26.1
0°-40°	29339.6	43.0
0°-60°	49866.8	73.1
0°-90°	65991.1	96.7
90°-120°	2109.8	3.1
90°-150°	2197.2	3.2
90°-180°	2224.0	3.3
0°-180°	68214.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	21308	21308	21308	21308	21308	
5°	21085	21042	21068	21092	21039	###
15°	21371	21298	21368	21400	21297	6048
25°	21138	21132	21214	21195	21122	9707
35°	18597	18569	18598	18618	18544	11561
45°	14311	14356	14329	14335	14296	11076
55°	10539	10543	10512	10502	10493	9468
65°	7486	7469	7470	7455	7440	7451
75°	5081	5107	5085	5078	5133	5382
85°	3061	3107	3076	3074	3129	2683
90°	1763	1766	1597	1736	1804	1030
95°	1240	1268	1253	1245	1258	950
105°	574	589	584	586	593	616
115°	62	64	64	63	62	92
125°	32	33	32	32	33	28
135°	42	42	42	42	42	32
145°	44	44	44	44	43	27
155°	30	32	30	30	30	15
165°	32	30	30	30	30	9
175°	30	30	30	30	32	3
180°	30	30	30	30	30	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	21308.3	21308.3	21308.3	21308.3	21308.3
2.5°	21331.2	21276.8	21322.6	21338.4	21281.1
5°	21084.8	21041.9	21067.6	21092.0	21039.0
7.5°	21136.4	21069.1	21120.6	21133.5	21057.6
10°	21232.4	21229.5	21263.9	21249.6	21188.0
12.5°	21311.2	21278.2	21315.5	21321.2	21253.9
15°	21371.3	21298.3	21368.5	21400.0	21296.8
17.5°	21352.7	21276.8	21357.0	21400.0	21292.5
20°	21354.1	21263.9	21349.8	21381.4	21291.1
22.5°	21347.0	21292.5	21365.6	21401.4	21319.8
25°	21137.8	21132.1	21213.8	21195.1	21122.1
27.5°	20775.4	20745.3	20792.6	20811.2	20761.1
30°	20175.2	20155.2	20221.0	20256.9	20225.3
32.5°	19470.4	19467.6	19509.1	19477.6	19443.2
35°	18596.6	18569.4	18598.0	18618.1	18543.6
37.5°	17530.8	17533.7	17570.9	17515.1	17543.7
40°	16440.7	16457.9	16436.4	16420.6	16399.2
42.5°	15353.4	15369.2	15354.9	15350.6	15300.4
45°	14310.6	14356.4	14329.2	14334.9	14296.3
47.5°	13339.4	13353.7	13350.8	13329.3	13322.2
50°	12408.2	12398.2	12398.2	12345.2	12383.9
52.5°	11458.5	11461.4	11404.1	11386.9	11431.3
55°	10538.8	10543.1	10511.6	10501.6	10493.0
57.5°	9690.8	9683.6	9690.8	9660.7	9710.9
60°	8910.1	8905.8	8902.9	8877.1	8910.1
62.5°	8182.4	8168.1	8160.9	8146.6	8162.3
65°	7486.2	7469.0	7470.4	7454.7	7440.4
67.5°	6850.2	6837.3	6830.1	6827.3	6812.9
70°	6239.9	6231.3	6225.6	6211.3	6244.2
72.5°	5655.5	5659.8	5639.7	5626.8	5695.6
75°	5081.0	5106.8	5085.3	5078.2	5132.6
77.5°	4528.1	4571.1	4545.3	4542.4	4588.3
80°	3996.7	4046.8	4032.5	4019.6	4069.7
82.5°	3513.9	3569.8	3549.7	3532.5	3576.9
85°	3061.2	3107.1	3075.6	3074.1	3128.6
87.5°	2568.5	2610.0	2542.7	2578.5	2624.3
90°	1763.4	1766.3	1597.2	1736.2	1803.5
92.5°	1422.5	1449.7	1418.2	1425.3	1439.7
95°	1240.5	1267.8	1253.4	1244.8	1257.7
97.5°	1077.2	1100.2	1085.8	1084.4	1095.9
100°	913.9	929.7	916.8	921.1	929.7
102.5°	752.1	766.4	759.2	762.1	773.5
105°	574.4	588.8	584.5	585.9	593.1
107.5°	408.3	415.4	408.3	411.1	421.2
110°	255.0	262.1	250.7	257.8	270.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	131.8	140.4	143.2	140.4	136.1
115°	61.6	64.5	64.5	63.0	61.6
117.5°	30.1	30.1	28.6	30.1	30.1
120°	25.8	27.2	25.8	25.8	27.2
122.5°	28.6	30.1	28.6	28.6	30.1
125°	31.5	32.9	31.5	31.5	32.9
127.5°	34.4	35.8	34.4	34.4	35.8
130°	37.2	37.2	37.2	37.2	37.2
132.5°	38.7	40.1	38.7	38.7	40.1
135°	41.5	41.5	41.5	41.5	41.5
137.5°	43.0	43.0	43.0	43.0	44.4
140°	44.4	44.4	44.4	44.4	44.4
142.5°	45.8	44.4	44.4	45.8	44.4
145°	44.4	44.4	44.4	44.4	43.0
147.5°	41.5	41.5	41.5	41.5	41.5
150°	37.2	37.2	37.2	37.2	37.2
152.5°	32.9	32.9	32.9	32.9	32.9
155°	30.1	31.5	30.1	30.1	30.1
157.5°	31.5	31.5	30.1	30.1	30.1
160°	31.5	31.5	30.1	30.1	30.1
162.5°	31.5	31.5	30.1	30.1	30.1
165°	31.5	30.1	30.1	30.1	30.1
167.5°	31.5	30.1	30.1	30.1	30.1
170°	31.5	31.5	30.1	30.1	30.1
172.5°	30.1	31.5	30.1	30.1	30.1
175°	30.1	30.1	30.1	30.1	31.5
177.5°	28.6	28.6	30.1	30.1	31.5
180°	30.1	30.1	30.1	30.1	30.1

(END OF REPORT)