

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: P381728

Luminaire Tested: **BMK-70-MCL-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: P381728  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1908-468-6)  
Test Lab: INNOVATIONS CENTER(G2)  
Issue Date: 2/4/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: BMK-70-MCL-UNV-L850-CD-U  
Description: BENCHMARK HIGHBAY LED FIXTURE WITH MEDIUM CLEAR LENS

Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.    Condition    Description

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 69609.9 lumens  
Efficiency: N/A  
Efficacy: 139.0 lumens/watt  
Spacing Criteria (0/90/45): 1.41 / 1.41 / 1.39  
Luminous Opening: Vertical Cylinder (Dia: 1.33' x H: 0.12')  
CIE Type: Direct

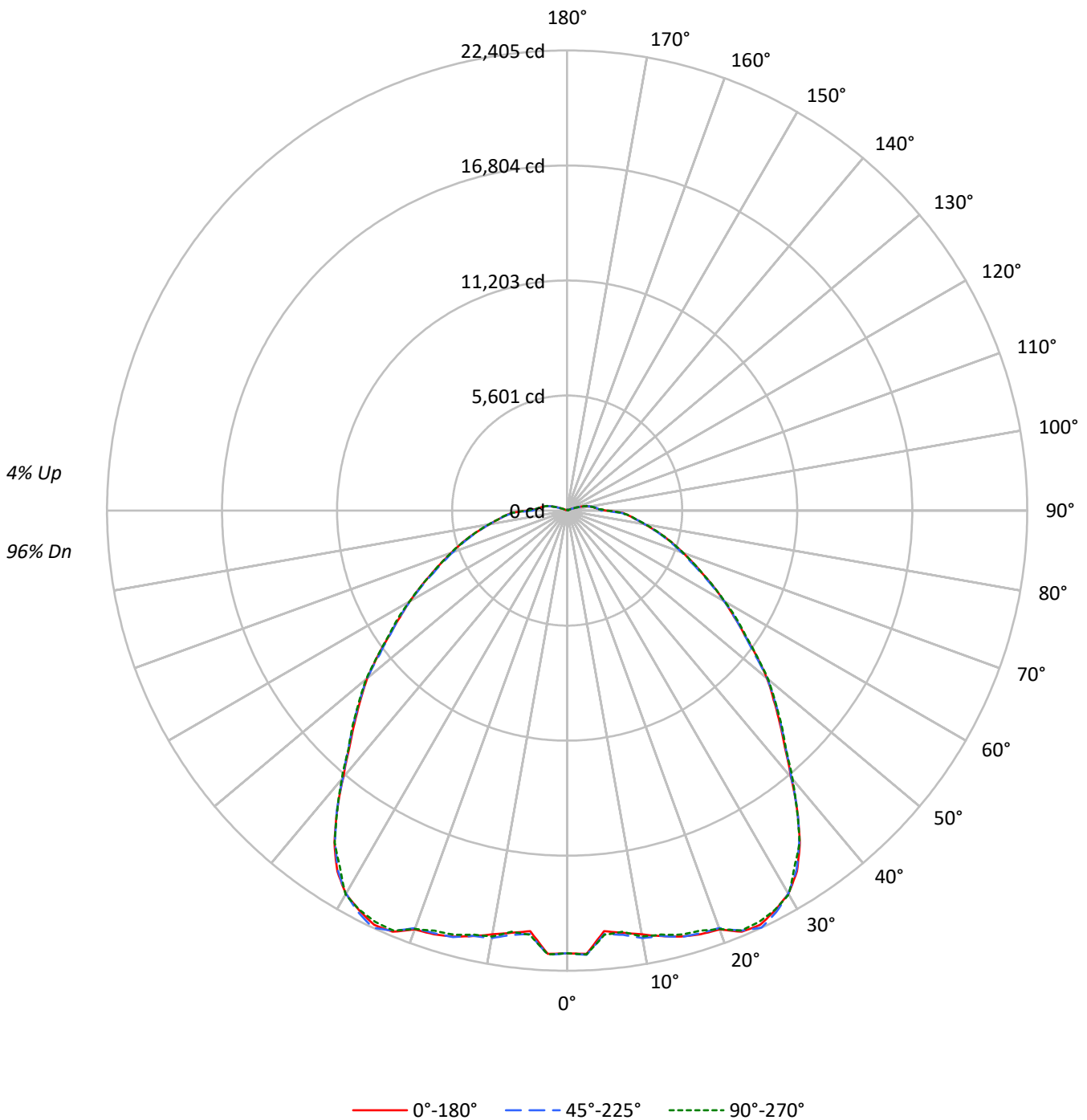
Input Watts (W): 500.7  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	96
1	107	102	97	93	104	99	95	91	94	90	87	89	87	84	85	83	81	78
2	97	88	81	75	94	86	80	74	82	77	72	78	74	70	75	71	68	65
3	89	78	69	63	86	76	68	62	72	66	60	69	63	59	66	61	57	55
4	81	69	60	53	79	67	59	53	64	57	52	62	55	50	59	54	49	47
5	75	62	53	46	72	60	52	45	58	50	45	55	49	44	53	48	43	41
6	69	56	47	40	67	54	46	40	52	45	39	50	44	38	48	42	38	36
7	64	50	42	35	62	49	41	35	48	40	35	46	39	34	44	38	34	32
8	60	46	37	32	58	45	37	31	43	36	31	42	35	31	41	35	30	28
9	56	42	34	28	54	41	34	28	40	33	28	39	32	28	37	32	27	25
10	52	39	31	26	51	38	31	26	37	30	25	36	29	25	35	29	25	23

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

	0°	45°	90°
0°	166226	166226	166226
5°	157475	158551	158902
10°	160707	162103	161520
15°	166124	166334	165381
20°	170654	170193	170519
25°	179397	180620	178149
30°	179492	179409	179863
35°	171623	171200	171449
40°	155231	155440	156344
45°	142629	143326	143787
50°	133457	133681	134224
55°	121219	120841	121778
60°	112994	112885	113342
65°	105797	104465	105880
70°	101798	100509	101970
75°	101023	99635	100934
80°	101293	101598	102888
85°	114562	114079	116115



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	1999.1	2.9
10°-20°	6075.3	8.7
20°-30°	10185.8	14.6
30°-40°	12216.9	17.6
40°-50°	11387.6	16.4
50°-60°	9498.2	13.6
60°-70°	7215.9	10.4
70°-80°	5147.3	7.4
80°-90°	3261.6	4.7
90°-100°	1566.5	2.3
100°-110°	815.6	1.2
110°-120°	110.6	0.2
120°-130°	33.0	0.0
130°-140°	36.7	0.1
140°-150°	30.8	0.0
150°-160°	16.5	0.0
160°-170°	9.4	0.0
170°-180°	3.1	0.0
0°-30°	18260.2	26.2
0°-40°	30477.0	43.8
0°-60°	51362.8	73.8
0°-90°	66987.6	96.2
90°-120°	2492.7	3.6
90°-150°	2593.2	3.7
90°-180°	2622.0	3.8
0°-180°	69609.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	21552	21552	21552	21552	21552	
5°	20552	20641	20692	20706	20738	###
15°	21470	21411	21497	21544	21374	6080
25°	22254	22299	22405	22242	22099	10180
35°	19751	19697	19702	19765	19731	12231
45°	14637	14676	14709	14726	14756	11344
55°	10552	10524	10519	10492	10600	9520
65°	7281	7155	7190	7202	7287	7268
75°	4900	4865	4833	4845	4896	5168
85°	3061	3061	3048	3035	3103	2657
90°	1892	1819	1666	1799	1922	1106
95°	1388	1442	1445	1402	1394	1093
105°	785	794	786	779	795	820
115°	63	67	69	66	67	108
125°	37	37	36	37	39	33
135°	47	47	47	47	49	36
145°	52	50	50	50	49	31
155°	34	34	33	33	34	17
165°	34	33	33	33	33	10
175°	32	33	32	33	34	3
180°	33	33	33	33	33	



TEST NUMBER: P381728

CATALOG NUMBER: BMK-70-MCL-UNV-L850-CD-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	21551.6	21551.6	21551.6	21551.6	21551.6
2.5°	21604.6	21548.8	21650.5	21686.3	21630.4
5°	20551.8	20640.6	20692.2	20706.5	20738.0
7.5°	20730.8	20640.6	20831.1	20831.1	20683.6
10°	20951.4	21160.6	21133.4	21099.0	21057.4
12.5°	21222.2	21213.6	21210.7	21180.6	21146.3
15°	21470.0	21411.3	21497.2	21544.5	21374.0
17.5°	21627.6	21462.8	21577.4	21657.6	21449.9
20°	21694.9	21524.4	21636.2	21770.8	21677.7
22.5°	22199.1	22091.7	22136.1	22236.4	22131.8
25°	22253.6	22299.4	22405.4	22242.1	22098.8
27.5°	21938.4	22004.3	22045.8	22022.9	21911.2
30°	21543.0	21527.3	21533.0	21613.2	21587.5
32.5°	20829.7	20739.4	20772.4	20682.1	20589.0
35°	19751.0	19696.6	19702.3	19765.3	19731.0
37.5°	18410.2	18327.1	18415.9	18461.8	18384.4
40°	16962.0	17085.2	16984.9	17017.8	17083.7
42.5°	15708.6	15820.3	15768.7	15814.6	15761.6
45°	14637.1	14675.7	14708.7	14725.9	14756.0
47.5°	13641.5	13683.0	13708.8	13727.4	13728.9
50°	12704.7	12688.9	12726.1	12630.2	12777.7
52.5°	11614.5	11511.4	11507.1	11475.6	11641.8
55°	10551.6	10524.4	10518.7	10491.5	10600.3
57.5°	9653.5	9656.3	9670.7	9679.3	9770.9
60°	8839.8	8763.9	8831.2	8811.2	8867.0
62.5°	8046.2	7956.0	7988.9	7987.5	8062.0
65°	7281.3	7155.2	7189.6	7202.5	7287.0
67.5°	6616.6	6549.3	6510.6	6565.0	6626.6
70°	5994.9	5949.1	5919.0	5954.8	6005.0
72.5°	5432.0	5367.5	5368.9	5361.8	5450.6
75°	4900.5	4864.7	4833.2	4844.6	4896.2
77.5°	4331.8	4377.7	4316.1	4339.0	4361.9
80°	3824.7	3876.3	3836.2	3831.9	3884.9
82.5°	3423.6	3427.9	3426.5	3402.1	3419.3
85°	3061.2	3061.2	3048.3	3035.4	3102.7
87.5°	2727.4	2657.2	2642.9	2653.0	2693.1
90°	1892.3	1819.2	1666.0	1799.2	1922.4
92.5°	1558.5	1585.8	1545.6	1545.6	1562.8
95°	1388.1	1442.5	1445.4	1402.4	1393.8
97.5°	1276.3	1310.7	1297.8	1274.9	1287.8
100°	1140.3	1151.7	1140.3	1131.7	1136.0
102.5°	1017.1	1015.6	1009.9	999.9	1027.1
105°	785.0	793.6	786.4	779.3	795.0
107.5°	550.1	542.9	531.4	532.9	540.0
110°	333.8	335.2	315.1	320.9	340.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	151.8	160.4	166.2	157.6	161.9
115°	63.0	67.3	68.8	65.9	67.3
117.5°	32.9	32.9	31.5	32.9	35.8
120°	30.1	31.5	28.6	30.1	32.9
122.5°	32.9	34.4	32.9	34.4	35.8
125°	37.2	37.2	35.8	37.2	38.7
127.5°	40.1	40.1	38.7	40.1	41.5
130°	41.5	43.0	43.0	43.0	43.0
132.5°	44.4	45.8	44.4	45.8	45.8
135°	47.3	47.3	47.3	47.3	48.7
137.5°	50.1	50.1	50.1	50.1	50.1
140°	51.6	51.6	51.6	51.6	51.6
142.5°	53.0	51.6	51.6	51.6	50.1
145°	51.6	50.1	50.1	50.1	48.7
147.5°	47.3	47.3	45.8	47.3	45.8
150°	43.0	41.5	41.5	41.5	41.5
152.5°	37.2	37.2	35.8	37.2	37.2
155°	34.4	34.4	32.9	32.9	34.4
157.5°	34.4	34.4	32.9	32.9	34.4
160°	34.4	34.4	32.9	32.9	32.9
162.5°	34.4	34.4	32.9	32.9	32.9
165°	34.4	32.9	32.9	32.9	32.9
167.5°	34.4	32.9	32.9	32.9	32.9
170°	34.4	32.9	32.9	32.9	32.9
172.5°	32.9	32.9	32.9	32.9	32.9
175°	31.5	32.9	31.5	32.9	34.4
177.5°	31.5	31.5	31.5	32.9	34.4
180°	32.9	32.9	32.9	32.9	32.9

(END OF REPORT)