

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: P381704

Luminaire Tested: **BMK-60-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: P381704  
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-60-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: 57971.1 lumens  
Efficiency: N/A  
Efficacy: 142.9 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

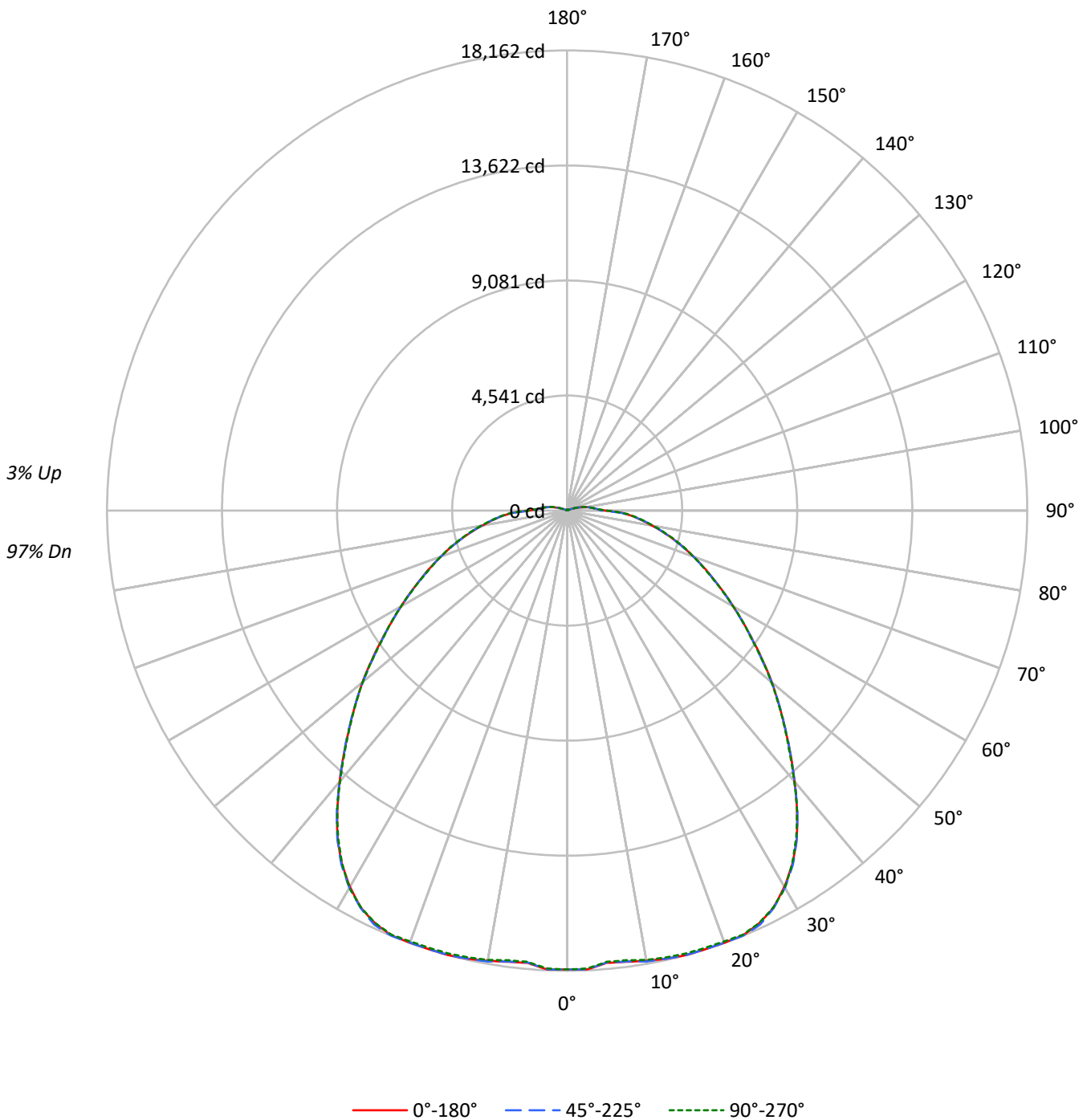
Input Watts (W): 405.7  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	139670	139670	139670
5°	137299	137187	137000
10°	138405	138611	138116
15°	140529	140510	140039
20°	142749	142721	142329
25°	144813	145333	144705
30°	142853	143178	143209
35°	137326	137336	136935
40°	127865	127832	127542
45°	118506	118660	118388
50°	110769	110680	110552
55°	102891	102625	102444
60°	96790	96712	96790
65°	92440	92245	91875
70°	90047	89840	90109
75°	89014	89091	89919
80°	89953	90758	91598
85°	97358	97814	99502



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	1716.2	3.0
10°-20°	5136.6	8.9
20°-30°	8253.9	14.2
30°-40°	9827.1	17.0
40°-50°	9413.4	16.2
50°-60°	8031.3	13.9
60°-70°	6316.8	10.9
70°-80°	4584.5	7.9
80°-90°	2801.6	4.8
90°-100°	1182.0	2.0
100°-110°	530.7	0.9
110°-120°	80.3	0.1
120°-130°	24.3	0.0
130°-140°	27.0	0.0
140°-150°	23.0	0.0
150°-160°	12.7	0.0
160°-170°	7.3	0.0
170°-180°	2.5	0.0
0°-30°	15106.7	26.1
0°-40°	24933.8	43.0
0°-60°	42378.5	73.1
0°-90°	56081.4	96.7
90°-120°	1793.0	3.1
90°-150°	1867.3	3.2
90°-180°	1890.0	3.3
0°-180°	57971.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	18108	18108	18108	18108	18108	
5°	17919	17882	17904	17925	17880	###
15°	18162	18100	18160	18186	18099	5140
25°	17964	17959	18028	18012	17950	8250
35°	15804	15781	15805	15822	15759	9824
45°	12162	12201	12177	12182	12149	9413
55°	8956	8960	8933	8925	8917	8046
65°	6362	6347	6349	6335	6323	6332
75°	4318	4340	4322	4316	4362	4574
85°	2602	2640	2614	2612	2659	2280
90°	1499	1501	1357	1476	1533	875
95°	1054	1077	1065	1058	1069	807
105°	488	500	497	498	504	523
115°	52	55	55	54	52	78
125°	27	28	27	27	28	24
135°	35	35	35	35	35	27
145°	38	38	38	38	36	23
155°	26	27	26	26	26	13
165°	27	26	26	26	26	8
175°	26	26	26	26	27	2
180°	26	26	26	26	26	



TEST NUMBER: P381704

CATALOG NUMBER: BMK-60-MFL-UNV-L850-CD-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	18108.5	18108.5	18108.5	18108.5	18108.5
2.5°	18128.0	18081.7	18120.7	18134.1	18085.4
5°	17918.6	17882.1	17904.0	17924.7	17879.6
7.5°	17962.4	17905.2	17949.0	17960.0	17895.5
10°	18044.0	18041.5	18070.8	18058.6	18006.2
12.5°	18110.9	18082.9	18114.6	18119.4	18062.2
15°	18162.1	18100.0	18159.6	18186.4	18098.8
17.5°	18146.2	18081.7	18149.9	18186.4	18095.1
20°	18147.4	18070.8	18143.8	18170.6	18093.9
22.5°	18141.4	18095.1	18157.2	18187.6	18118.2
25°	17963.6	17958.8	18028.1	18012.3	17950.2
27.5°	17655.6	17630.1	17670.2	17686.1	17643.5
30°	17145.5	17128.5	17184.5	17214.9	17188.2
32.5°	16546.6	16544.2	16579.5	16552.7	16523.5
35°	15804.0	15780.9	15805.2	15822.3	15759.0
37.5°	14898.3	14900.7	14932.4	14884.9	14909.2
40°	13971.8	13986.5	13968.2	13954.8	13936.5
42.5°	13047.9	13061.2	13049.1	13045.4	13002.8
45°	12161.6	12200.6	12177.4	12182.3	12149.4
47.5°	11336.2	11348.4	11346.0	11327.7	11321.6
50°	10544.9	10536.4	10536.4	10491.4	10524.2
52.5°	9737.8	9740.2	9691.5	9676.9	9714.7
55°	8956.2	8959.9	8933.1	8924.6	8917.3
57.5°	8235.6	8229.5	8235.6	8210.0	8252.6
60°	7572.1	7568.4	7566.0	7544.1	7572.1
62.5°	6953.7	6941.5	6935.4	6923.2	6936.6
65°	6362.0	6347.4	6348.6	6335.2	6323.1
67.5°	5821.5	5810.5	5804.5	5802.0	5789.8
70°	5302.9	5295.6	5290.7	5278.5	5306.5
72.5°	4806.2	4809.9	4792.8	4781.9	4840.3
75°	4318.0	4340.0	4321.7	4315.6	4361.9
77.5°	3848.1	3884.7	3862.7	3860.3	3899.3
80°	3396.5	3439.1	3426.9	3416.0	3458.6
82.5°	2986.2	3033.7	3016.7	3002.1	3039.8
85°	2601.5	2640.5	2613.7	2612.5	2658.8
87.5°	2182.8	2218.1	2160.8	2191.3	2230.2
90°	1498.6	1501.0	1357.4	1475.5	1532.7
92.5°	1208.9	1232.0	1205.2	1211.3	1223.5
95°	1054.2	1077.4	1065.2	1057.9	1068.9
97.5°	915.5	934.9	922.8	921.6	931.3
100°	776.7	790.1	779.1	782.8	790.1
102.5°	639.1	651.3	645.2	647.6	657.4
105°	488.2	500.3	496.7	497.9	504.0
107.5°	347.0	353.0	347.0	349.4	357.9
110°	216.7	222.8	213.0	219.1	230.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	112.0	119.3	121.7	119.3	115.7
115°	52.3	54.8	54.8	53.6	52.3
117.5°	25.6	25.6	24.3	25.6	25.6
120°	21.9	23.1	21.9	21.9	23.1
122.5°	24.3	25.6	24.3	24.3	25.6
125°	26.8	28.0	26.8	26.8	28.0
127.5°	29.2	30.4	29.2	29.2	30.4
130°	31.7	31.7	31.7	31.7	31.7
132.5°	32.9	34.1	32.9	32.9	34.1
135°	35.3	35.3	35.3	35.3	35.3
137.5°	36.5	36.5	36.5	36.5	37.7
140°	37.7	37.7	37.7	37.7	37.7
142.5°	39.0	37.7	37.7	39.0	37.7
145°	37.7	37.7	37.7	37.7	36.5
147.5°	35.3	35.3	35.3	35.3	35.3
150°	31.7	31.7	31.7	31.7	31.7
152.5°	28.0	28.0	28.0	28.0	28.0
155°	25.6	26.8	25.6	25.6	25.6
157.5°	26.8	26.8	25.6	25.6	25.6
160°	26.8	26.8	25.6	25.6	25.6
162.5°	26.8	26.8	25.6	25.6	25.6
165°	26.8	25.6	25.6	25.6	25.6
167.5°	26.8	25.6	25.6	25.6	25.6
170°	26.8	26.8	25.6	25.6	25.6
172.5°	25.6	26.8	25.6	25.6	25.6
175°	25.6	25.6	25.6	25.6	26.8
177.5°	24.3	24.3	25.6	25.6	26.8
180°	25.6	25.6	25.6	25.6	25.6

(END OF REPORT)