

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: P381721

Luminaire Tested: **BMK-60-MCL-UNV-L840-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: P381721  
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-60-MCL-UNV-L840-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: 58860.9 lumens  
Efficiency: N/A  
Efficacy: 145.1 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

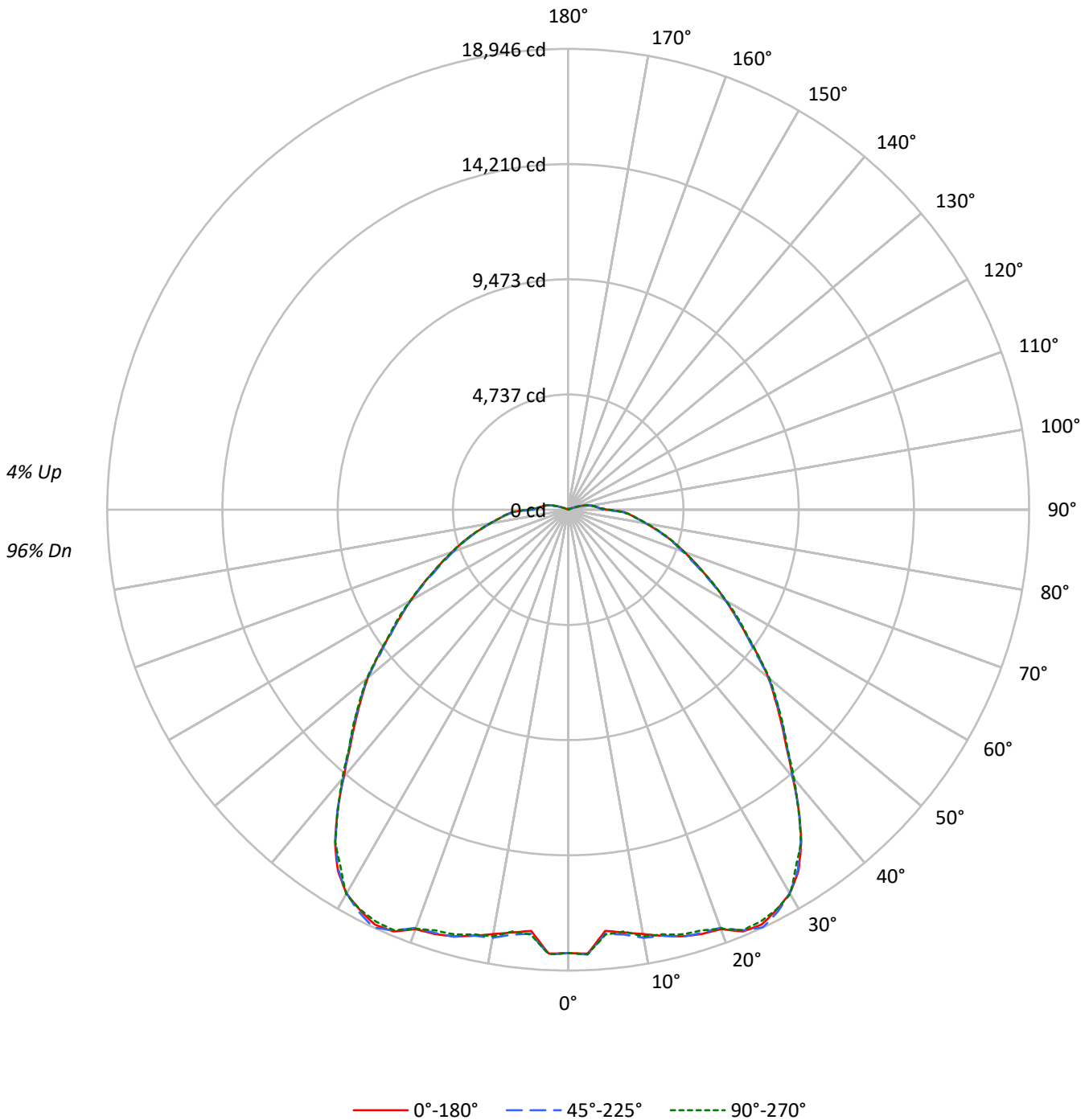
Input Watts (W): 405.7  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P381721

CATALOG NUMBER: BMK-60-MCL-UNV-L840-CD-U

### Luminous Intensity Polar Plot





TEST NUMBER: P381721

CATALOG NUMBER: BMK-60-MCL-UNV-L840-CD-U

**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°	140558	140558	140558
5°	133158	134068	134364
10°	135890	137071	136578
15°	140471	140649	139843
20°	144302	143911	144187
25°	151694	152729	150640
30°	151775	151705	152088
35°	145121	144763	144973
40°	131260	131437	132202
45°	120603	121194	121584
50°	112848	113039	113497
55°	102501	102181	102973
60°	95546	95453	95840
65°	89460	88334	89531
70°	86079	84989	86223
75°	85423	84248	85347
80°	85652	85909	87000
85°	96871	96463	98185



TEST NUMBER: P381721

CATALOG NUMBER: BMK-60-MCL-UNV-L840-CD-U

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	1690.4	2.9
10°-20°	5137.2	8.7
20°-30°	8612.9	14.6
30°-40°	10330.4	17.6
40°-50°	9629.1	16.4
50°-60°	8031.5	13.6
60°-70°	6101.7	10.4
70°-80°	4352.5	7.4
80°-90°	2757.9	4.7
90°-100°	1324.6	2.3
100°-110°	689.6	1.2
110°-120°	93.5	0.2
120°-130°	27.9	0.0
130°-140°	31.0	0.1
140°-150°	26.0	0.0
150°-160°	14.0	0.0
160°-170°	8.0	0.0
170°-180°	2.7	0.0
0°-30°	15440.5	26.2
0°-40°	25770.8	43.8
0°-60°	43431.4	73.8
0°-90°	56643.5	96.2
90°-120°	2107.8	3.6
90°-150°	2192.8	3.7
90°-180°	2217.0	3.8
0°-180°	58860.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	18224	18224	18224	18224	18224	
5°	17378	17453	17497	17509	17536	###
15°	18155	18105	18178	18218	18074	5141
25°	18817	18856	18946	18808	18686	8608
35°	16701	16655	16660	16713	16684	10342
45°	12377	12410	12437	12452	12477	9592
55°	8922	8899	8894	8871	8963	8050
65°	6157	6050	6079	6090	6162	6146
75°	4144	4114	4087	4096	4140	4370
85°	2588	2588	2578	2567	2624	2247
90°	1600	1538	1409	1521	1626	935
95°	1174	1220	1222	1186	1179	925
105°	664	671	665	659	672	694
115°	53	57	58	56	57	92
125°	32	32	30	32	33	28
135°	40	40	40	40	41	31
145°	44	42	42	42	41	27
155°	29	29	28	28	29	14
165°	29	28	28	28	28	8
175°	27	28	27	28	29	3
180°	28	28	28	28	28	



TEST NUMBER: P381721

CATALOG NUMBER: BMK-60-MCL-UNV-L840-CD-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	18223.7	18223.7	18223.7	18223.7	18223.7
2.5°	18268.5	18221.2	18307.2	18337.5	18290.3
5°	17378.2	17453.3	17496.9	17509.0	17535.6
7.5°	17529.6	17453.3	17614.4	17614.4	17489.6
10°	17716.1	17893.0	17870.0	17840.9	17805.8
12.5°	17945.1	17937.8	17935.4	17909.9	17880.9
15°	18154.6	18104.9	18177.6	18217.6	18073.5
17.5°	18287.8	18148.6	18245.5	18313.3	18137.7
20°	18344.8	18200.6	18295.1	18409.0	18330.2
22.5°	18771.1	18680.3	18717.9	18802.6	18714.2
25°	18817.2	18855.9	18945.6	18807.5	18686.4
27.5°	18550.7	18606.4	18641.5	18622.2	18527.7
30°	18216.4	18203.1	18207.9	18275.7	18253.9
32.5°	17613.2	17536.9	17564.7	17488.4	17409.7
35°	16701.1	16655.0	16659.9	16713.2	16684.1
37.5°	15567.3	15497.1	15572.2	15610.9	15545.5
40°	14342.7	14446.9	14362.1	14390.0	14445.7
42.5°	13282.9	13377.3	13333.7	13372.5	13327.7
45°	12376.8	12409.5	12437.4	12451.9	12477.4
47.5°	11535.0	11570.1	11591.9	11607.7	11608.9
50°	10742.8	10729.5	10761.0	10679.8	10804.6
52.5°	9821.0	9733.8	9730.2	9703.5	9844.0
55°	8922.3	8899.2	8894.4	8871.4	8963.4
57.5°	8162.8	8165.2	8177.3	8184.6	8262.1
60°	7474.8	7410.6	7467.5	7450.6	7497.8
62.5°	6803.7	6727.4	6755.3	6754.1	6817.1
65°	6156.9	6050.3	6079.4	6090.3	6161.8
67.5°	5594.9	5538.0	5505.3	5551.3	5603.4
70°	5069.2	5030.4	5005.0	5035.3	5077.7
72.5°	4593.2	4538.7	4539.9	4533.8	4608.9
75°	4143.8	4113.5	4086.8	4096.5	4140.1
77.5°	3662.9	3701.7	3649.6	3669.0	3688.3
80°	3234.1	3277.7	3243.8	3240.2	3285.0
82.5°	2895.0	2898.6	2897.4	2876.8	2891.3
85°	2588.5	2588.5	2577.6	2566.7	2623.6
87.5°	2306.3	2246.9	2234.8	2243.3	2277.2
90°	1600.1	1538.3	1408.7	1521.4	1625.5
92.5°	1317.9	1340.9	1307.0	1307.0	1321.5
95°	1173.7	1219.8	1222.2	1185.8	1178.6
97.5°	1079.2	1108.3	1097.4	1078.0	1088.9
100°	964.2	973.9	964.2	956.9	960.5
102.5°	860.0	858.8	853.9	845.5	868.5
105°	663.8	671.0	665.0	658.9	672.3
107.5°	465.1	459.1	449.4	450.6	456.7
110°	282.2	283.4	266.5	271.3	288.3



TEST NUMBER: P381721

CATALOG NUMBER: BMK-60-MCL-UNV-L840-CD-U

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	128.4	135.7	140.5	133.2	136.9
115°	53.3	56.9	58.1	55.7	56.9
117.5°	27.9	27.9	26.6	27.9	30.3
120°	25.4	26.6	24.2	25.4	27.9
122.5°	27.9	29.1	27.9	29.1	30.3
125°	31.5	31.5	30.3	31.5	32.7
127.5°	33.9	33.9	32.7	33.9	35.1
130°	35.1	36.3	36.3	36.3	36.3
132.5°	37.5	38.8	37.5	38.8	38.8
135°	40.0	40.0	40.0	40.0	41.2
137.5°	42.4	42.4	42.4	42.4	42.4
140°	43.6	43.6	43.6	43.6	43.6
142.5°	44.8	43.6	43.6	43.6	42.4
145°	43.6	42.4	42.4	42.4	41.2
147.5°	40.0	40.0	38.8	40.0	38.8
150°	36.3	35.1	35.1	35.1	35.1
152.5°	31.5	31.5	30.3	31.5	31.5
155°	29.1	29.1	27.9	27.9	29.1
157.5°	29.1	29.1	27.9	27.9	29.1
160°	29.1	29.1	27.9	27.9	27.9
162.5°	29.1	29.1	27.9	27.9	27.9
165°	29.1	27.9	27.9	27.9	27.9
167.5°	29.1	27.9	27.9	27.9	27.9
170°	29.1	27.9	27.9	27.9	27.9
172.5°	27.9	27.9	27.9	27.9	27.9
175°	26.6	27.9	26.6	27.9	29.1
177.5°	26.6	26.6	26.6	27.9	29.1
180°	27.9	27.9	27.9	27.9	27.9

(END OF REPORT)