

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: P381703

Luminaire Tested: **BMK-60-MFL-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: P381703  
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-L840-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: 57681.0 lumens  
Efficiency: N/A  
Efficacy: 142.2 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

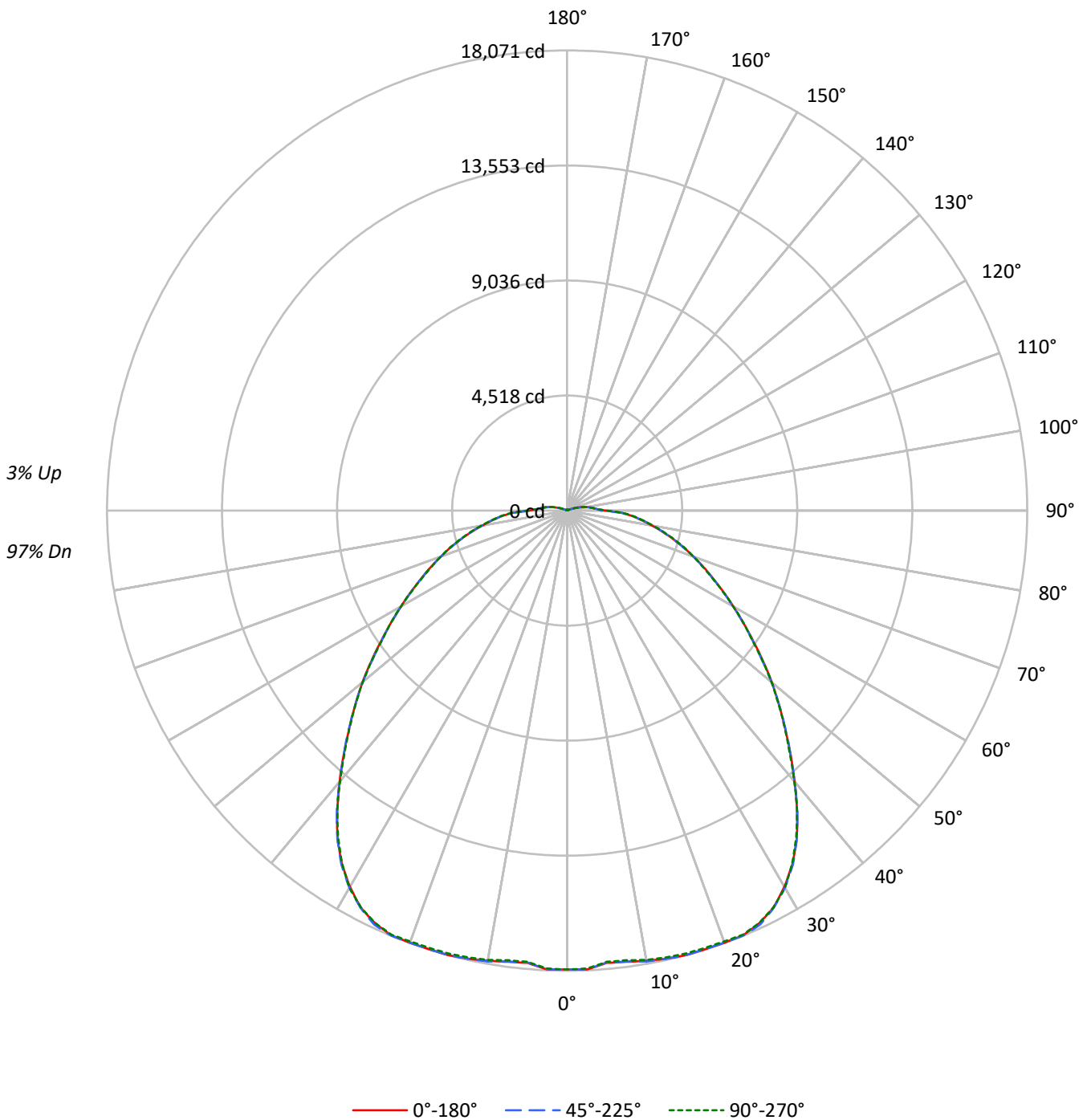
Input Watts (W): 405.7  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	138971	138971	138971
5°	136612	136500	136315
10°	137713	137917	137424
15°	139826	139807	139338
20°	142036	142007	141617
25°	144088	144606	143981
30°	142139	142461	142492
35°	136639	136649	136249
40°	127226	127193	126904
45°	117914	118067	117795
50°	110215	110126	109999
55°	102376	102112	101931
60°	96306	96228	96306
65°	91978	91785	91414
70°	89597	89392	89659
75°	88569	88645	89468
80°	89503	90305	91139
85°	96871	97324	99005



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	1707.7	3.0
10°-20°	5110.9	8.9
20°-30°	8212.6	14.2
30°-40°	9777.9	17.0
40°-50°	9366.3	16.2
50°-60°	7991.1	13.9
60°-70°	6285.2	10.9
70°-80°	4561.6	7.9
80°-90°	2787.6	4.8
90°-100°	1176.1	2.0
100°-110°	528.0	0.9
110°-120°	79.9	0.1
120°-130°	24.2	0.0
130°-140°	26.9	0.0
140°-150°	22.8	0.0
150°-160°	12.6	0.0
160°-170°	7.3	0.0
170°-180°	2.4	0.0
0°-30°	15031.1	26.1
0°-40°	24809.0	43.0
0°-60°	42166.4	73.1
0°-90°	55800.8	96.7
90°-120°	1784.0	3.1
90°-150°	1857.9	3.2
90°-180°	1880.0	3.3
0°-180°	57681.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	18018	18018	18018	18018	18018	
5°	17829	17793	17814	17835	17790	###
15°	18071	18009	18069	18095	18008	5114
25°	17874	17869	17938	17922	17860	8208
35°	15725	15702	15726	15743	15680	9775
45°	12101	12140	12116	12121	12089	9366
55°	8911	8915	8888	8880	8873	8006
65°	6330	6316	6317	6304	6291	6300
75°	4296	4318	4300	4294	4340	4551
85°	2588	2627	2601	2599	2646	2269
90°	1491	1494	1351	1468	1525	871
95°	1049	1072	1060	1053	1064	803
105°	486	498	494	495	502	521
115°	52	54	54	53	52	77
125°	27	28	27	27	28	24
135°	35	35	35	35	35	27
145°	38	38	38	38	36	23
155°	25	27	25	25	25	13
165°	27	25	25	25	25	8
175°	25	25	25	25	27	2
180°	25	25	25	25	25	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	18017.9	18017.9	18017.9	18017.9	18017.9
2.5°	18037.3	17991.2	18030.0	18043.3	17994.9
5°	17828.9	17792.6	17814.4	17835.0	17790.2
7.5°	17872.5	17815.6	17859.2	17870.1	17805.9
10°	17953.7	17951.3	17980.3	17968.2	17916.1
12.5°	18020.3	17992.5	18023.9	18028.8	17971.9
15°	18071.2	18009.4	18068.8	18095.4	18008.2
17.5°	18055.4	17991.2	18059.1	18095.4	18004.6
20°	18056.7	17980.3	18053.0	18079.7	18003.4
22.5°	18050.6	18004.6	18066.3	18096.6	18027.6
25°	17873.7	17868.9	17937.9	17922.2	17860.4
27.5°	17567.3	17541.9	17581.8	17597.6	17555.2
30°	17059.8	17042.8	17098.5	17128.8	17102.2
32.5°	16463.8	16461.4	16496.5	16469.9	16440.8
35°	15724.9	15701.9	15726.1	15743.1	15680.1
37.5°	14823.7	14826.2	14857.6	14810.4	14834.6
40°	13901.9	13916.5	13898.3	13885.0	13866.8
42.5°	12982.6	12995.9	12983.8	12980.1	12937.8
45°	12100.8	12139.5	12116.5	12121.3	12088.6
47.5°	11279.5	11291.6	11289.2	11271.0	11265.0
50°	10492.2	10483.7	10483.7	10438.9	10471.6
52.5°	9689.1	9691.5	9643.1	9628.5	9666.1
55°	8911.4	8915.1	8888.4	8879.9	8872.7
57.5°	8194.4	8188.3	8194.4	8168.9	8211.3
60°	7534.2	7530.6	7528.1	7506.3	7534.2
62.5°	6918.9	6906.8	6900.7	6888.6	6901.9
65°	6330.2	6315.6	6316.9	6303.5	6291.4
67.5°	5792.4	5781.5	5775.4	5773.0	5760.9
70°	5276.4	5269.1	5264.3	5252.1	5280.0
72.5°	4782.2	4785.8	4768.8	4757.9	4816.1
75°	4296.4	4318.2	4300.1	4294.0	4340.0
77.5°	3828.9	3865.2	3843.4	3841.0	3879.8
80°	3379.5	3421.9	3409.8	3398.9	3441.3
82.5°	2971.3	3018.5	3001.6	2987.0	3024.6
85°	2588.5	2627.3	2600.6	2599.4	2645.5
87.5°	2171.8	2207.0	2150.0	2180.3	2219.1
90°	1491.1	1493.5	1350.6	1468.1	1525.0
92.5°	1202.8	1225.8	1199.2	1205.2	1217.3
95°	1049.0	1072.0	1059.9	1052.6	1063.5
97.5°	910.9	930.3	918.2	916.9	926.6
100°	772.8	786.1	775.2	778.9	786.1
102.5°	635.9	648.0	642.0	644.4	654.1
105°	485.7	497.8	494.2	495.4	501.5
107.5°	345.2	351.3	345.2	347.6	356.1
110°	215.6	221.7	212.0	218.0	228.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	111.4	118.7	121.1	118.7	115.1
115°	52.1	54.5	54.5	53.3	52.1
117.5°	25.4	25.4	24.2	25.4	25.4
120°	21.8	23.0	21.8	21.8	23.0
122.5°	24.2	25.4	24.2	24.2	25.4
125°	26.6	27.9	26.6	26.6	27.9
127.5°	29.1	30.3	29.1	29.1	30.3
130°	31.5	31.5	31.5	31.5	31.5
132.5°	32.7	33.9	32.7	32.7	33.9
135°	35.1	35.1	35.1	35.1	35.1
137.5°	36.3	36.3	36.3	36.3	37.5
140°	37.5	37.5	37.5	37.5	37.5
142.5°	38.8	37.5	37.5	38.8	37.5
145°	37.5	37.5	37.5	37.5	36.3
147.5°	35.1	35.1	35.1	35.1	35.1
150°	31.5	31.5	31.5	31.5	31.5
152.5°	27.9	27.9	27.9	27.9	27.9
155°	25.4	26.6	25.4	25.4	25.4
157.5°	26.6	26.6	25.4	25.4	25.4
160°	26.6	26.6	25.4	25.4	25.4
162.5°	26.6	26.6	25.4	25.4	25.4
165°	26.6	25.4	25.4	25.4	25.4
167.5°	26.6	25.4	25.4	25.4	25.4
170°	26.6	26.6	25.4	25.4	25.4
172.5°	25.4	26.6	25.4	25.4	25.4
175°	25.4	25.4	25.4	25.4	26.6
177.5°	24.2	24.2	25.4	25.4	26.6
180°	25.4	25.4	25.4	25.4	25.4

(END OF REPORT)