

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: P294522

Luminaire Tested: **BMK-12-NFL-UNV-L840-CD-U**

Issue Date: 3/3/2020

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: P294522  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1901-103-7)  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: BMK-12-NFL-UNV-L840-CD-U  
Description: BENCHMARK HIGHBAY LED FIXTURE  
WITH NARROW FROSTED LENS  
Light Source: (528) 80 CRI 4000K LEDS  
Ballast/Driver: ELECTRONIC DRIVER  
Luminaire Equipment: Sample No.   Condition   Description

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12073.0 lumens  
Efficiency: N/A  
Efficacy: 162.5 lumens/watt  
Spacing Criteria (0/90/45): 1.06 / 1.06 / 1.11  
Luminous Opening: Vertical Cylinder (Dia: 1.33' x H: 0.12')  
CIE Type: Direct

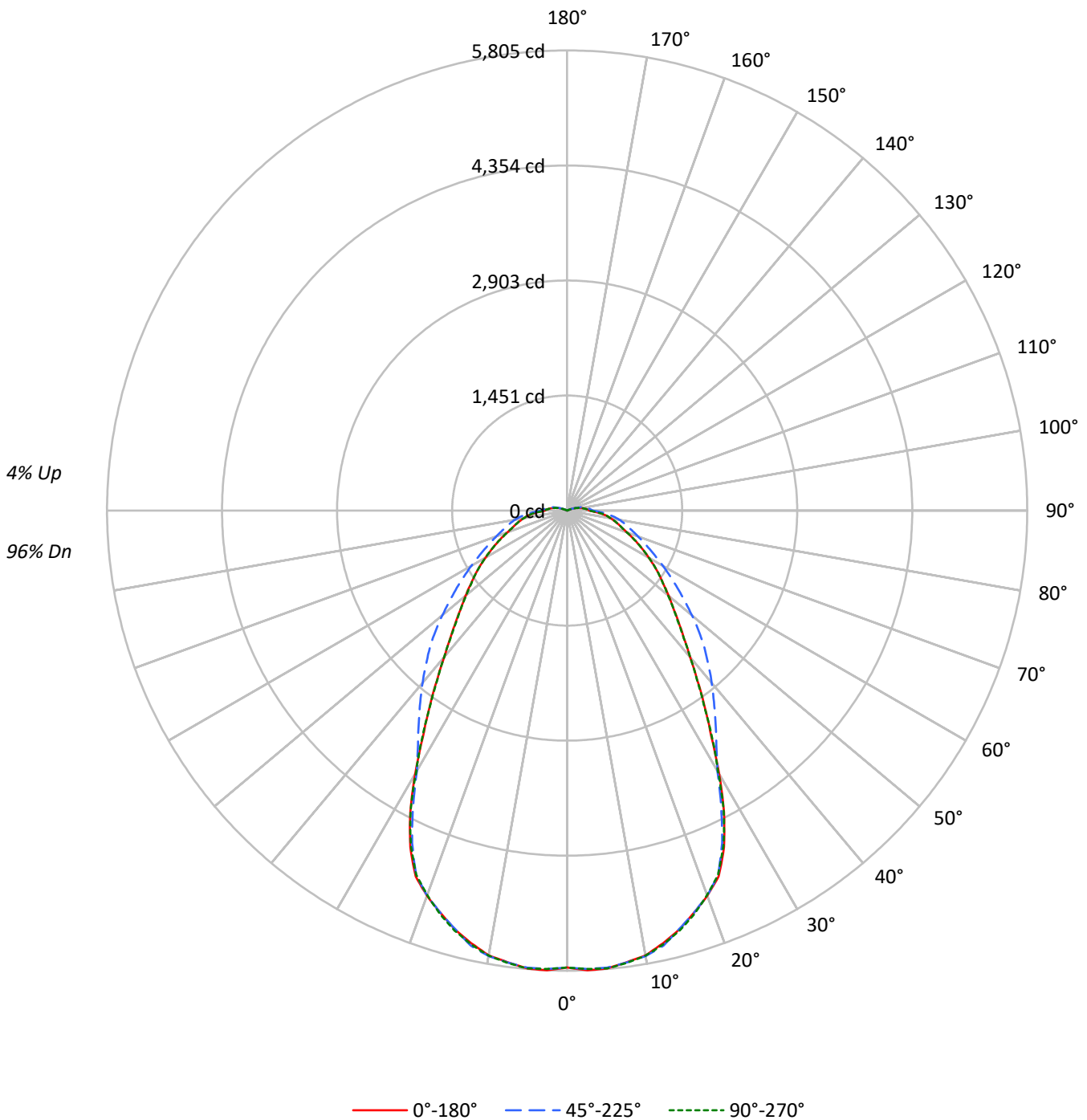
Input Watts (W): 74.3  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	99	99	99	99	99	99	96		
1	108	103	98	95	105	100	96	93	95	92	89	91	88	86	87	84	82	87	84	82	87	84	82	80		
2	99	91	84	78	96	88	82	77	84	79	75	80	76	72	77	73	70	77	73	70	77	73	70	68		
3	91	80	73	66	88	79	71	66	75	69	64	72	67	62	69	65	61	69	65	61	69	65	61	59		
4	84	72	64	57	81	71	63	57	68	61	56	65	59	55	62	58	53	62	58	53	62	58	53	51		
5	77	65	57	50	75	64	56	50	61	55	49	59	53	48	57	52	47	57	52	47	57	52	47	45		
6	72	59	51	45	70	58	50	45	56	49	44	54	48	43	52	47	43	52	47	43	52	47	43	41		
7	67	54	46	40	65	53	46	40	52	45	40	50	44	39	48	43	38	48	43	38	48	43	38	37		
8	63	50	42	37	61	49	42	36	48	41	36	46	40	35	45	39	35	45	39	35	45	39	35	33		
9	59	46	39	33	58	46	38	33	44	38	33	43	37	32	42	36	32	42	36	32	42	36	32	30		
10	56	43	36	31	54	42	35	30	41	35	30	40	34	30	39	34	30	39	34	30	39	34	30	28		

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

	0°	45°	90°
0°	44431	44431	44431
5°	44396	44318	44396
10°	43676	43757	43698
15°	42299	42251	42418
20°	40657	40623	40571
25°	37738	37276	37585
30°	31936	31548	31728
35°	26282	28347	26206
40°	22052	25963	22076
45°	19352	23860	19206
50°	17571	21561	17451
55°	16303	19492	16295
60°	15188	17852	15225
65°	14330	16640	14250
70°	13604	16115	13548
75°	13781	16435	13788
80°	14780	17766	14788
85°	16176	19255	16371



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	548.9	4.5
10°-20°	1537.7	12.7
20°-30°	2102.1	17.4
30°-40°	1974.4	16.4
40°-50°	1702.3	14.1
50°-60°	1396.8	11.6
60°-70°	1076.2	8.9
70°-80°	788.6	6.5
80°-90°	505.3	4.2
90°-100°	273.2	2.3
100°-110°	141.5	1.2
110°-120°	25.6	0.2
120°-130°	0.4	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	4188.6	34.7
0°-40°	6163.0	51.0
0°-60°	9262.1	76.7
0°-90°	11632.3	96.3
90°-120°	440.3	3.6
90°-150°	440.7	3.7
90°-180°	441.0	3.7
0°-180°	12073.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5763	5763	5763	5763	5763	
5°	5797	5793	5787	5784	5797	549
15°	5469	5457	5463	5460	5485	1538
25°	4684	4632	4626	4614	4665	2119
35°	3026	3135	3264	3128	3017	1904
45°	1987	2181	2450	2174	1972	1545
55°	1420	1552	1698	1551	1419	1272
65°	987	1097	1146	1095	981	979
75°	669	752	798	750	669	710
85°	432	464	515	462	438	378
90°	281	303	324	306	280	161
95°	238	244	276	244	238	183
105°	128	130	152	130	129	134
115°	14	19	25	19	15	22
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P294522

CATALOG NUMBER: BMK-12-NFL-UNV-L840-CD-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5763.4	5763.4	5763.4	5763.4	5763.4
2.5°	5805.4	5794.6	5788.7	5782.1	5787.7
5°	5796.9	5792.9	5786.7	5784.1	5796.9
7.5°	5745.7	5742.1	5750.3	5736.6	5755.9
10°	5696.9	5685.1	5707.4	5661.2	5699.8
12.5°	5589.7	5597.9	5621.5	5588.7	5603.8
15°	5469.4	5456.9	5463.2	5459.9	5484.8
17.5°	5319.2	5311.4	5318.6	5310.1	5336.3
20°	5171.1	5161.2	5166.8	5161.9	5160.2
22.5°	4995.4	4963.9	4976.7	4941.6	4972.4
25°	4683.6	4632.1	4626.2	4614.1	4664.6
27.5°	4286.6	4235.5	4206.6	4219.1	4280.4
30°	3834.9	3831.9	3788.3	3816.8	3809.9
32.5°	3386.4	3472.6	3500.8	3471.0	3406.4
35°	3026.1	3134.6	3263.8	3127.8	3017.3
37.5°	2699.0	2853.0	3041.5	2838.9	2690.4
40°	2410.8	2598.3	2838.3	2585.5	2413.4
42.5°	2178.1	2376.1	2635.4	2372.8	2175.4
45°	1986.9	2181.3	2449.8	2174.4	1971.9
47.5°	1811.9	2007.6	2254.4	2004.0	1811.5
50°	1673.5	1833.8	2053.5	1833.5	1662.1
52.5°	1535.2	1686.6	1864.7	1689.6	1529.3
55°	1419.8	1551.9	1697.5	1550.6	1419.1
57.5°	1304.1	1430.3	1539.1	1428.6	1305.7
60°	1188.7	1311.3	1397.2	1307.7	1191.6
62.5°	1083.1	1202.8	1261.1	1196.6	1085.7
65°	986.7	1096.9	1145.7	1094.6	981.2
67.5°	891.0	999.5	1043.8	1000.5	888.1
70°	801.5	912.7	949.4	911.3	798.2
72.5°	728.1	832.7	869.1	829.7	728.1
75°	668.8	752.4	797.6	750.1	669.1
77.5°	611.4	679.6	734.0	677.6	616.0
80°	558.3	611.1	671.1	605.2	558.6
82.5°	502.6	537.0	596.6	534.4	505.2
85°	432.4	463.5	514.7	461.9	437.6
87.5°	350.4	386.2	415.0	386.2	355.0
90°	280.6	302.6	323.6	306.2	280.3
92.5°	265.9	273.1	300.3	274.1	266.5
95°	237.7	244.2	275.7	243.9	237.7
97.5°	211.1	217.3	249.1	216.4	209.8
100°	182.9	188.5	219.0	190.1	181.9
102.5°	157.4	161.6	187.5	161.9	157.0
105°	128.2	129.8	151.5	130.5	128.8
107.5°	95.1	97.0	108.2	98.3	96.7
110°	63.6	65.2	72.8	66.5	65.2



TEST NUMBER: P294522

CATALOG NUMBER: BMK-12-NFL-UNV-L840-CD-U

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	36.1	38.0	47.5	38.4	35.4
115°	14.4	19.0	24.6	19.3	14.8
117.5°	3.9	7.2	8.9	7.2	4.3
120°	3.3	3.6	3.3	3.6	3.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)