

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: P294541

Luminaire Tested: **BMK-24-NFL-UNV-L850-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: P294541  
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-24-NFL-UNV-L850-CD-U  
Description: BENCHMARK HIGHBAY LED FIXTURE  
WITH NARROW FROSTED LENS  
Light Source: (528) 80 CRI 5000K LEDS  
Ballast/Driver: ELECTRONIC DRIVER  
Luminaire Equipment: Sample No.   Condition   Description

**Summary**

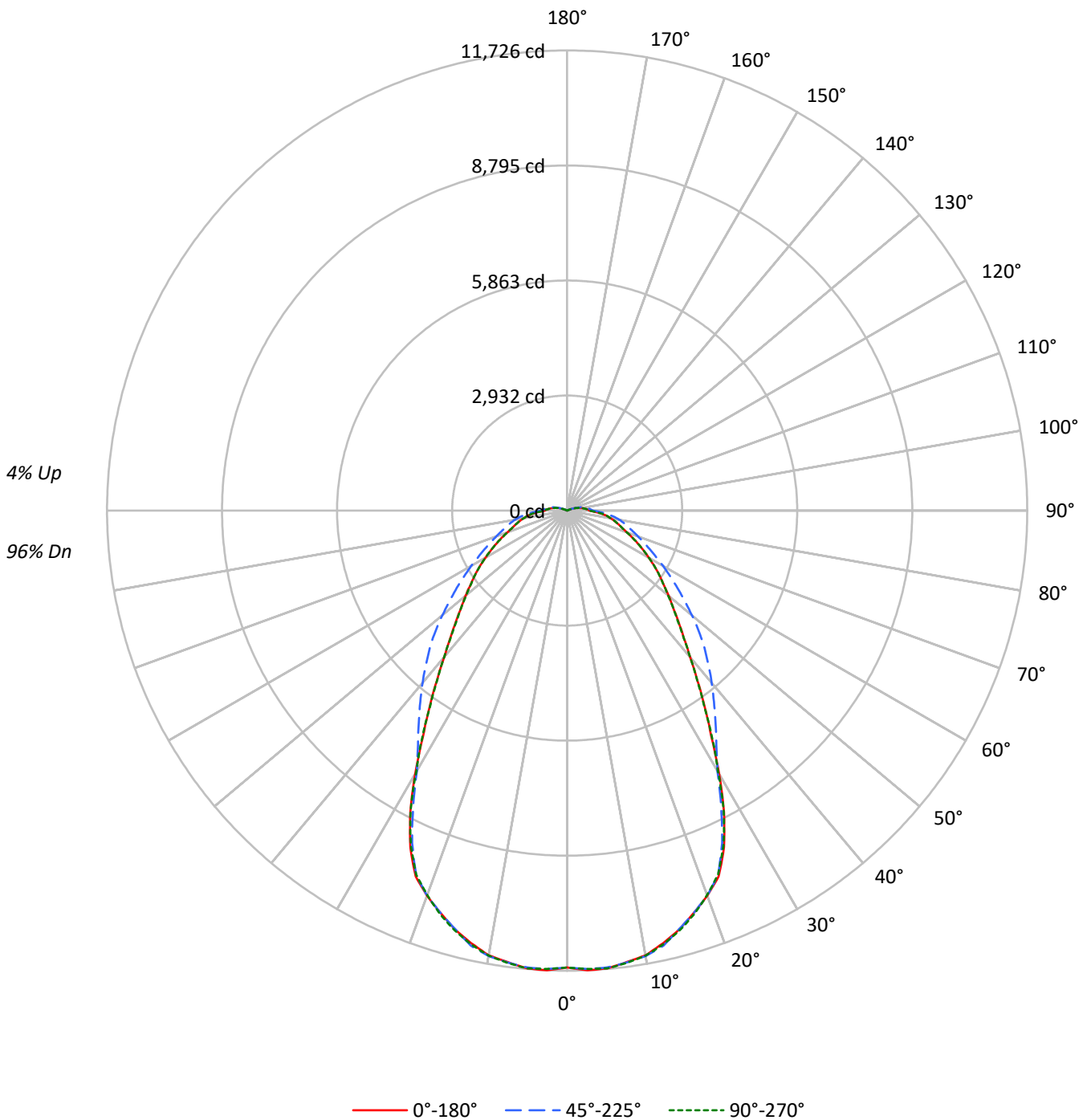
Lumens per Lamp: N/A  
Luminaire Lumens: 24386.0 lumens  
Efficiency: N/A  
Efficacy: 156.8 lumens/watt  
Spacing Criteria (0/90/45): 1.06 / 1.06 / 1.11  
Luminous Opening: Vertical Cylinder (Dia: 1.33' x H: 0.12')  
CIE Type: Direct  
  
Input Watts (W): 155.5  
Input Voltage (V): 120  
Input Current (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



TEST NUMBER: P294541

CATALOG NUMBER: BMK-24-NFL-UNV-L850-CD-U

### Luminous Intensity Polar Plot





TEST NUMBER: P294541

CATALOG NUMBER: BMK-24-NFL-UNV-L850-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	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°	89745	89745	89745
5°	89674	89517	89674
10°	88220	88383	88266
15°	85438	85340	85678
20°	82121	82053	81949
25°	76227	75293	75917
30°	64507	63723	64087
35°	53087	57257	52932
40°	44543	52442	44591
45°	39089	48195	38792
50°	35492	43550	35249
55°	32931	39371	32916
60°	30677	36057	30753
65°	28947	33612	28783
70°	27480	32548	27368
75°	27835	33196	27849
80°	29854	35882	29870
85°	32674	38892	33071



TEST NUMBER: P294541

CATALOG NUMBER: BMK-24-NFL-UNV-L850-CD-U

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	1108.7	4.5
10°-20°	3105.9	12.7
20°-30°	4245.9	17.4
30°-40°	3988.1	16.4
40°-50°	3438.5	14.1
50°-60°	2821.3	11.6
60°-70°	2173.9	8.9
70°-80°	1592.8	6.5
80°-90°	1020.7	4.2
90°-100°	551.9	2.3
100°-110°	285.8	1.2
110°-120°	51.7	0.2
120°-130°	0.8	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°	8460.5	34.7
0°-40°	12448.6	51.0
0°-60°	18708.4	76.7
0°-90°	23495.8	96.3
90°-120°	889.4	3.6
90°-150°	890.2	3.7
90°-180°	890.0	3.6
0°-180°	24386.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	11642	11642	11642	11642	11642	
5°	11709	11701	11688	11683	11709	###
15°	11048	11022	11035	11028	11079	3107
25°	9460	9356	9344	9320	9422	4279
35°	6112	6332	6592	6318	6094	3846
45°	4013	4406	4948	4392	3983	3120
55°	2868	3135	3429	3132	2866	2570
65°	1993	2216	2314	2211	1982	1978
75°	1351	1520	1611	1515	1352	1434
85°	873	936	1040	933	884	764
90°	567	611	654	618	566	326
95°	480	493	557	493	480	370
105°	259	262	306	264	260	270
115°	29	38	50	39	30	45
125°	0	0	0	0	0	1
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: P294541

CATALOG NUMBER: BMK-24-NFL-UNV-L850-CD-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	11641.5	11641.5	11641.5	11641.5	11641.5
2.5°	11726.2	11704.4	11692.4	11679.2	11690.5
5°	11709.0	11701.1	11688.5	11683.2	11709.0
7.5°	11605.7	11598.4	11615.0	11587.2	11626.2
10°	11507.0	11483.2	11528.2	11434.9	11513.0
12.5°	11290.5	11307.1	11354.7	11288.5	11319.0
15°	11047.5	11022.3	11034.9	11028.3	11078.6
17.5°	10744.2	10728.3	10742.9	10725.7	10778.7
20°	10444.9	10425.1	10436.3	10426.4	10423.1
22.5°	10090.0	10026.4	10052.3	9981.4	10043.7
25°	9460.3	9356.3	9344.4	9319.9	9421.9
27.5°	8658.4	8555.1	8496.9	8522.0	8645.8
30°	7746.0	7740.0	7651.9	7709.5	7695.6
32.5°	6840.1	7014.3	7071.2	7011.0	6880.5
35°	6112.4	6331.6	6592.5	6317.7	6094.5
37.5°	5451.6	5762.8	6143.5	5734.3	5434.4
40°	4869.5	5248.3	5733.0	5222.5	4874.8
42.5°	4399.4	4799.3	5323.1	4792.7	4394.1
45°	4013.4	4406.0	4948.3	4392.1	3982.9
47.5°	3659.8	4055.1	4553.7	4047.8	3659.1
50°	3380.3	3704.1	4147.8	3703.5	3357.2
52.5°	3100.9	3406.8	3766.4	3412.8	3089.0
55°	2867.8	3134.7	3428.7	3132.0	2866.5
57.5°	2634.1	2889.0	3108.8	2885.7	2637.4
60°	2401.0	2648.6	2822.1	2641.4	2407.0
62.5°	2187.8	2429.5	2547.3	2416.9	2193.1
65°	1993.1	2215.6	2314.3	2211.0	1981.8
67.5°	1799.8	2018.9	2108.3	2020.9	1793.8
70°	1619.0	1843.5	1917.6	1840.8	1612.4
72.5°	1470.7	1681.9	1755.4	1675.9	1470.7
75°	1350.8	1519.7	1611.0	1515.0	1351.5
77.5°	1234.9	1372.7	1482.6	1368.7	1244.2
80°	1127.7	1234.3	1355.4	1222.3	1128.3
82.5°	1015.1	1084.6	1205.1	1079.3	1020.4
85°	873.4	936.3	1039.6	933.0	884.0
87.5°	707.9	780.0	838.3	780.0	717.1
90°	566.8	611.2	653.6	618.5	566.1
92.5°	537.0	551.6	606.5	553.6	538.3
95°	480.1	493.3	556.9	492.6	480.1
97.5°	426.4	439.0	503.2	437.0	423.8
100°	369.5	380.7	442.3	384.1	367.5
102.5°	317.8	326.4	378.8	327.1	317.2
105°	258.9	262.2	305.9	263.5	260.2
107.5°	192.0	196.0	218.5	198.6	195.3
110°	128.5	131.8	147.0	134.4	131.8



TEST NUMBER: P294541

CATALOG NUMBER: BMK-24-NFL-UNV-L850-CD-U

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	72.8	76.8	96.0	77.5	71.5
115°	29.1	38.4	49.7	39.1	29.8
117.5°	7.9	14.6	17.9	14.6	8.6
120°	6.6	7.3	6.6	7.3	6.0
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)