

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: P381727

Luminaire Tested: **BMK-70-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: P381727  
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-70-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: 69261.7 lumens  
Efficiency: N/A  
Efficacy: 138.3 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

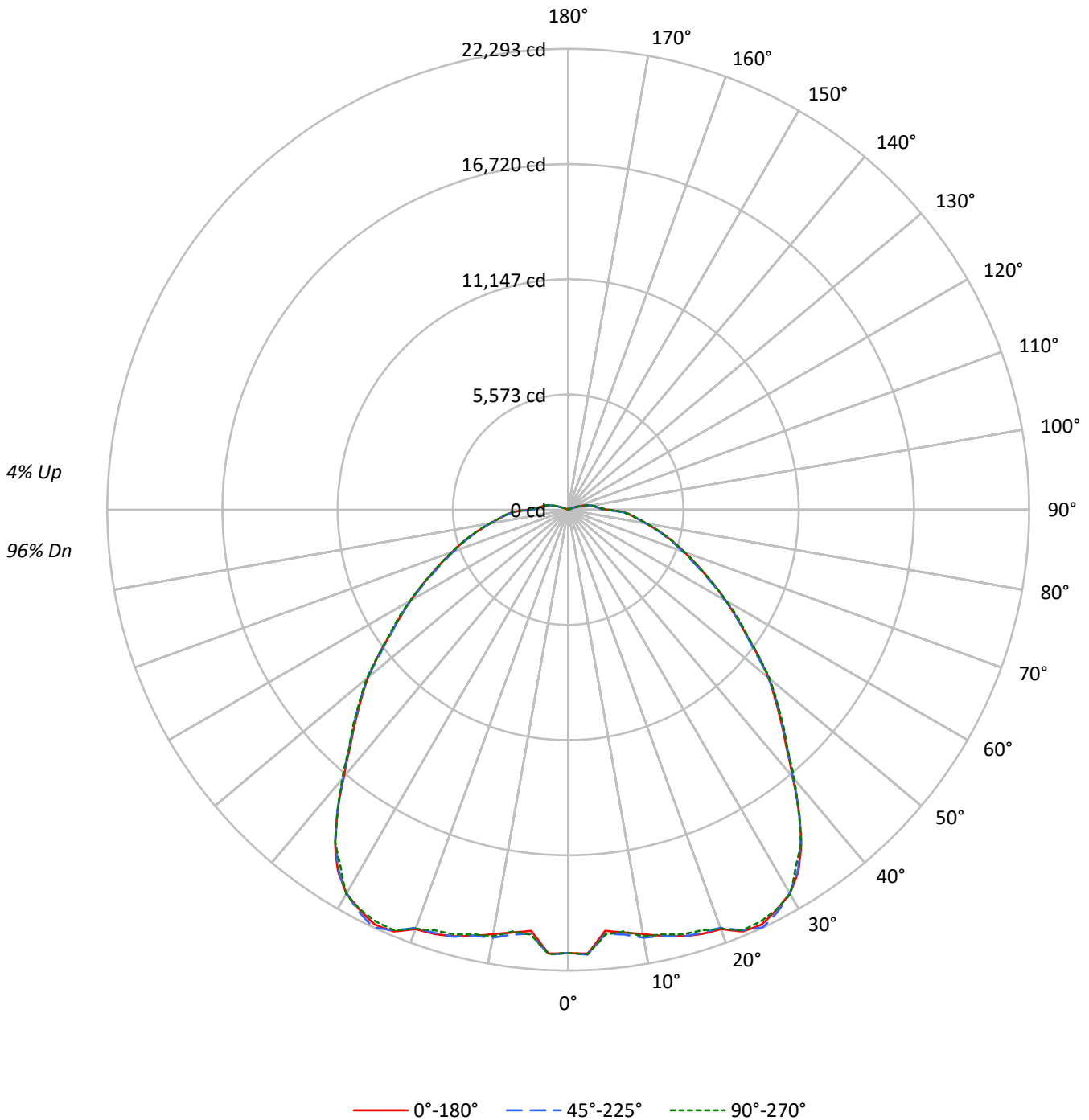
Input Watts (W): 500.7  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P381727

CATALOG NUMBER: BMK-70-MCL-UNV-L840-CD-U

### Luminous Intensity Polar Plot





TEST NUMBER: P381727

CATALOG NUMBER: BMK-70-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	50	30	10	0	
RCR																						
0	118	118	118	118	115	115	115	115	109	109	109	104	104	104	99	99	99	96				96
1	107	102	97	93	104	99	95	91	94	90	87	89	87	84	85	83	81	78				78
2	97	88	81	75	94	86	80	74	82	77	72	78	74	70	75	71	68	65				65
3	89	78	69	63	86	76	68	62	72	66	60	69	63	59	66	61	57	55				55
4	81	69	60	53	79	67	59	53	64	57	52	62	55	50	59	54	49	47				47
5	75	62	53	46	72	60	52	45	58	50	45	55	49	44	53	48	43	41				41
6	69	56	47	40	67	54	46	40	52	45	39	50	44	38	48	42	38	36				36
7	64	50	42	35	62	49	41	35	48	40	35	46	39	34	44	38	34	32				32
8	60	46	37	32	58	45	37	31	43	36	31	42	35	31	41	35	30	28				28
9	56	42	34	28	54	41	34	28	40	33	28	39	32	28	37	32	27	25				25
10	52	39	31	26	51	38	31	26	37	30	25	36	29	25	35	29	25	23				23

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

	0°	45°	90°
0°	165395	165395	165395
5°	156687	157757	158107
10°	159903	161291	160712
15°	165293	165503	164554
20°	169800	169341	169666
25°	178499	179717	177258
30°	178595	178511	178962
35°	170764	170343	170590
40°	154454	154662	155563
45°	141914	142609	143067
50°	132789	133013	133552
55°	120612	120237	121169
60°	112429	112320	112776
65°	105269	103942	105351
70°	101289	100007	101459
75°	100518	99136	100429
80°	100787	101089	102371
85°	113989	113510	115535



TEST NUMBER: P381727

CATALOG NUMBER: BMK-70-MCL-UNV-L840-CD-U

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	1989.1	2.9
10°-20°	6044.9	8.7
20°-30°	10134.8	14.6
30°-40°	12155.7	17.6
40°-50°	11330.6	16.4
50°-60°	9450.7	13.6
60°-70°	7179.8	10.4
70°-80°	5121.5	7.4
80°-90°	3245.3	4.7
90°-100°	1558.7	2.3
100°-110°	811.5	1.2
110°-120°	110.1	0.2
120°-130°	32.9	0.0
130°-140°	36.5	0.1
140°-150°	30.6	0.0
150°-160°	16.4	0.0
160°-170°	9.4	0.0
170°-180°	3.1	0.0
0°-30°	18168.8	26.2
0°-40°	30324.6	43.8
0°-60°	51105.8	73.8
0°-90°	66652.5	96.2
90°-120°	2480.3	3.6
90°-150°	2580.2	3.7
90°-180°	2609.0	3.8
0°-180°	69261.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	21444	21444	21444	21444	21444	
5°	20449	20537	20589	20603	20634	###
15°	21363	21304	21390	21437	21267	6050
25°	22142	22188	22293	22131	21988	10129
35°	19652	19598	19604	19666	19632	12170
45°	14564	14602	14635	14652	14682	11287
55°	10499	10472	10466	10439	10547	9472
65°	7245	7119	7154	7166	7251	7232
75°	4876	4840	4809	4820	4872	5143
85°	3046	3046	3033	3020	3087	2644
90°	1883	1810	1658	1790	1913	1100
95°	1381	1435	1438	1395	1387	1088
105°	781	790	782	775	791	816
115°	63	67	68	66	67	108
125°	37	37	36	37	38	33
135°	47	47	47	47	48	36
145°	51	50	50	50	48	31
155°	34	34	33	33	34	17
165°	34	33	33	33	33	10
175°	31	33	31	33	34	3
180°	33	33	33	33	33	



TEST NUMBER: P381727

CATALOG NUMBER: BMK-70-MCL-UNV-L840-CD-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	21443.8	21443.8	21443.8	21443.8	21443.8
2.5°	21496.5	21441.0	21542.2	21577.8	21522.2
5°	20448.9	20537.3	20588.6	20602.9	20634.2
7.5°	20627.1	20537.3	20726.9	20726.9	20580.1
10°	20846.6	21054.7	21027.6	20993.4	20952.1
12.5°	21116.0	21107.4	21104.6	21074.7	21040.4
15°	21362.6	21304.1	21389.7	21436.7	21267.1
17.5°	21519.4	21355.4	21469.5	21549.3	21342.6
20°	21586.3	21416.7	21527.9	21661.9	21569.2
22.5°	22088.1	21981.2	22025.3	22125.1	22021.1
25°	22142.2	22187.8	22293.3	22130.8	21988.3
27.5°	21828.6	21894.2	21935.5	21912.7	21801.6
30°	21435.3	21419.6	21425.3	21505.1	21479.4
32.5°	20725.5	20635.7	20668.4	20578.6	20486.0
35°	19652.2	19598.0	19603.7	19666.4	19632.2
37.5°	18318.1	18235.4	18323.8	18369.4	18292.4
40°	16877.1	16999.7	16899.9	16932.7	16998.3
42.5°	15630.0	15741.1	15689.8	15735.4	15682.7
45°	14563.8	14602.3	14635.1	14652.2	14682.1
47.5°	13573.2	13614.6	13640.2	13658.8	13660.2
50°	12641.1	12625.4	12662.5	12567.0	12713.8
52.5°	11556.4	11453.8	11449.5	11418.2	11583.5
55°	10498.8	10471.8	10466.1	10439.0	10547.3
57.5°	9605.2	9608.0	9622.3	9630.8	9722.1
60°	8795.6	8720.1	8787.0	8767.1	8822.7
62.5°	8006.0	7916.2	7949.0	7947.5	8021.7
65°	7244.9	7119.4	7153.6	7166.5	7250.6
67.5°	6583.5	6516.5	6478.0	6532.2	6593.5
70°	5964.9	5919.3	5889.4	5925.0	5974.9
72.5°	5404.8	5340.6	5342.1	5334.9	5423.3
75°	4876.0	4840.4	4809.0	4820.4	4871.7
77.5°	4310.1	4355.8	4294.5	4317.3	4340.1
80°	3805.6	3856.9	3817.0	3812.7	3865.4
82.5°	3406.5	3410.8	3409.3	3385.1	3402.2
85°	3045.9	3045.9	3033.1	3020.2	3087.2
87.5°	2713.8	2644.0	2629.7	2639.7	2679.6
90°	1882.8	1810.1	1657.6	1790.2	1912.8
92.5°	1550.7	1577.8	1537.9	1537.9	1555.0
95°	1381.1	1435.3	1438.1	1395.4	1386.8
97.5°	1270.0	1304.2	1291.3	1268.5	1281.4
100°	1134.5	1146.0	1134.5	1126.0	1130.3
102.5°	1012.0	1010.5	1004.8	994.9	1021.9
105°	781.1	789.6	782.5	775.4	791.0
107.5°	547.3	540.2	528.8	530.2	537.3
110°	332.1	333.5	313.6	319.3	339.2



TEST NUMBER: P381727

CATALOG NUMBER: BMK-70-MCL-UNV-L840-CD-U

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	151.1	159.6	165.3	156.8	161.1
115°	62.7	67.0	68.4	65.6	67.0
117.5°	32.8	32.8	31.4	32.8	35.6
120°	29.9	31.4	28.5	29.9	32.8
122.5°	32.8	34.2	32.8	34.2	35.6
125°	37.1	37.1	35.6	37.1	38.5
127.5°	39.9	39.9	38.5	39.9	41.3
130°	41.3	42.8	42.8	42.8	42.8
132.5°	44.2	45.6	44.2	45.6	45.6
135°	47.0	47.0	47.0	47.0	48.5
137.5°	49.9	49.9	49.9	49.9	49.9
140°	51.3	51.3	51.3	51.3	51.3
142.5°	52.7	51.3	51.3	51.3	49.9
145°	51.3	49.9	49.9	49.9	48.5
147.5°	47.0	47.0	45.6	47.0	45.6
150°	42.8	41.3	41.3	41.3	41.3
152.5°	37.1	37.1	35.6	37.1	37.1
155°	34.2	34.2	32.8	32.8	34.2
157.5°	34.2	34.2	32.8	32.8	34.2
160°	34.2	34.2	32.8	32.8	32.8
162.5°	34.2	34.2	32.8	32.8	32.8
165°	34.2	32.8	32.8	32.8	32.8
167.5°	34.2	32.8	32.8	32.8	32.8
170°	34.2	32.8	32.8	32.8	32.8
172.5°	32.8	32.8	32.8	32.8	32.8
175°	31.4	32.8	31.4	32.8	34.2
177.5°	31.4	31.4	31.4	32.8	34.2
180°	32.8	32.8	32.8	32.8	32.8

(END OF REPORT)