

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: P30247

Luminaire Tested: **HBL-432-N-UNV-EB81/PLUS**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-41-14  
Report Number: P30247  
Test Lab: METALUX RESEARCH LABS  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: HBL-432-N-UNV-EB81/PLUS  
Description: OPEN HIGH BAY INDUSTRIAL LUMINAIRE, NARROW DISTRIBUTION,  
SPECULAR REFLECTOR, NO UPLIGHT  
Light Source: FOUR (4) 32W T8 LAMPS - 3100 LUMENS EA  
Ballast/Driver: -

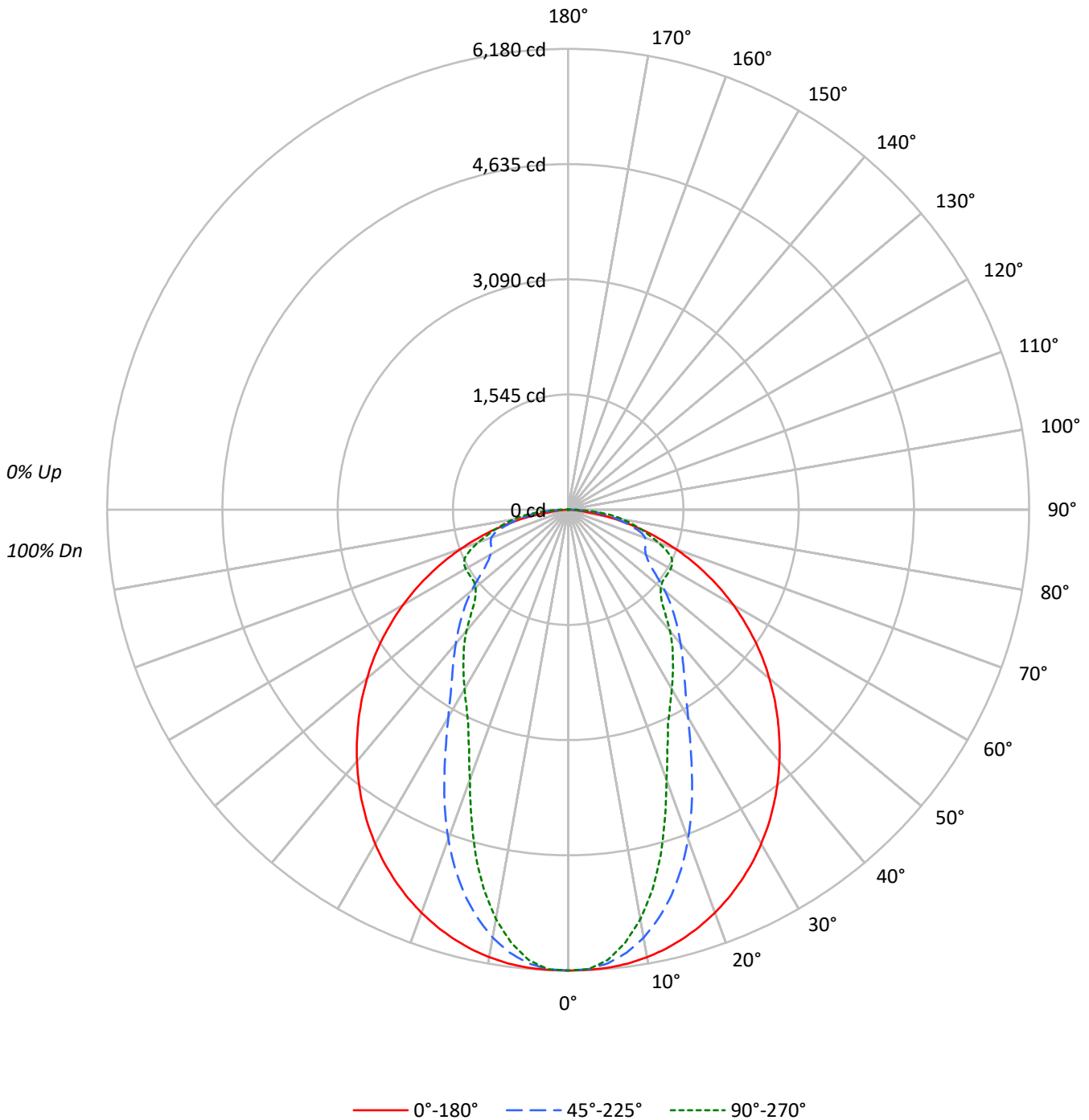
**Summary**

Lumens per Lamp: 3100 (4 lamps)  
Luminaire Lumens: 11923.5 lumens  
Efficiency: 96.2%  
Efficacy: 81.8 lumens/watt  
Spacing Criteria (0/90/45): 1.24 / 0.75 / 0.97  
Luminous Opening: Rectangular (W 1.63' x L: 4.04' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 145.8  
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

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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	114	114	114	114	112	112	112	112	107	107	107	102	102	102	98	98	98	96
1	104	100	96	92	102	97	94	90	93	90	87	90	87	85	86	84	82	80
2	95	87	81	75	93	86	80	74	82	77	73	79	75	71	76	72	69	67
3	87	77	70	63	85	76	69	63	73	67	62	70	65	61	68	63	60	57
4	80	69	61	55	78	68	60	54	65	59	53	63	57	53	61	56	52	50
5	74	62	54	48	72	61	53	47	59	52	47	57	51	46	56	50	46	44
6	69	57	48	42	67	56	48	42	54	47	42	52	46	41	51	45	41	39
7	64	52	44	38	63	51	43	38	50	43	37	48	42	37	47	41	37	35
8	60	48	40	34	59	47	39	34	46	39	34	44	38	34	43	38	34	32
9	57	44	36	31	55	43	36	31	42	36	31	41	35	31	40	35	31	29
10	53	41	34	29	52	40	33	29	39	33	28	39	33	28	38	32	28	27

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

	0°	45°	90°
0°	10125	10125	10125
5°	10143	10044	9968
10°	10138	9693	9273
15°	10101	9076	8133
20°	10027	8193	6718
25°	9923	7092	5727
30°	9790	6079	5257
35°	9623	5416	4894
40°	9423	5015	4543
45°	9206	4664	4127
50°	8972	4310	4127
55°	8715	3913	4530
60°	8385	3935	5197
65°	7936	4423	5931
70°	7310	5260	6146
75°	6406	5697	6394
80°	4906	5916	7001
85°	2444	6880	7783



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	574.0	4.8	4.6	0°	6180	6180	6180	6180	6180	
10°-20°	1496.0	12.5	12.1	5°	6167	6155	6107	6054	6061	586
20°-30°	1907.8	16.0	15.4	15°	5955	5783	5351	4937	4795	1680
30°-40°	1985.1	16.6	16.0	25°	5489	4994	3923	3296	3168	2529
40°-50°	1802.3	15.1	14.5	35°	4811	3858	2708	2494	2447	3008
50°-60°	1539.9	12.9	12.4	45°	3973	2567	2013	1837	1781	3065
60°-70°	1319.8	11.1	10.6	55°	3051	1654	1370	1486	1586	2725
70°-80°	916.3	7.7	7.4	65°	2047	993	1141	1449	1530	2024
80°-90°	354.9	3.0	2.9	75°	1012	586	900	977	1010	1070
90°-100°	16.3	0.1	0.1	85°	130	259	366	404	414	193
100°-110°	5.2	0.0	0.0	90°	2	21	50	72	79	5
110°-120°	5.3	0.0	0.0	95°	6	5	5	12	17	5
120°-130°	0.6	0.0	0.0	105°	3	7	6	6	5	5
130°-140°	0.0	0.0	0.0	115°	5	5	6	6	4	5
140°-150°	0.0	0.0	0.0	125°	0	0	0	0	0	1
150°-160°	0.0	0.0	0.0	135°	0	0	0	0	0	0
160°-170°	0.0	0.0	0.0	145°	0	0	0	0	0	0
170°-180°	0.0	0.0	0.0	155°	0	0	0	0	0	0
0°-30°	3977.8	33.4	32.1	165°	0	0	0	0	0	0
0°-40°	5962.9	50.0	48.1	175°	0	0	0	0	0	0
0°-60°	9305.1	78.0	75.0	180°	0	0	0	0	0	0
0°-90°	11896.1	99.8	95.9							
90°-120°	26.8	0.2	0.2							
90°-150°	27.4	0.2	0.2							
90°-180°	27.0	0.2	0.2							
0°-180°	11923.5	100.0	96.2							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	6180	6180	6180	6180	6180
2.5°	6175	6180	6167	6151	6169
5°	6167	6155	6107	6054	6061
7.5°	6138	6102	5993	5880	5856
10°	6094	6022	5826	5629	5574
12.5°	6033	5915	5610	5317	5215
15°	5955	5783	5351	4937	4795
17.5°	5861	5622	5046	4511	4315
20°	5751	5435	4699	4051	3853
22.5°	5627	5224	4325	3638	3470
25°	5489	4994	3923	3296	3168
27.5°	5340	4739	3543	3031	2956
30°	5175	4463	3213	2834	2779
32.5°	4999	4167	2931	2661	2610
35°	4811	3858	2708	2494	2447
37.5°	4613	3533	2519	2334	2292
40°	4406	3197	2345	2185	2124
42.5°	4192	2870	2176	2021	1940
45°	3973	2567	2013	1837	1781
47.5°	3749	2294	1856	1676	1679
50°	3520	2050	1691	1578	1619
52.5°	3290	1837	1520	1515	1589
55°	3051	1654	1370	1486	1586
57.5°	2806	1477	1269	1478	1587
60°	2559	1308	1201	1473	1586
62.5°	2305	1152	1162	1468	1576
65°	2047	993	1141	1449	1530
67.5°	1787	840	1125	1387	1425
70°	1526	711	1098	1255	1283
72.5°	1269	632	1029	1115	1143
75°	1012	586	900	977	1010
77.5°	758	550	756	844	874
80°	520	492	627	713	742
82.5°	306	378	502	581	601
85°	130	259	366	404	414
87.5°	29	140	190	219	226
90°	2	21	50	72	79
92.5°	4	4	20	36	42
95°	6	5	5	12	17
97.5°	6	5	5	5	5
100°	6	5	4	5	4
102.5°	4	5	4	5	4
105°	3	7	6	6	5
107.5°	5	5	4	5	4
110°	5	5	5	5	3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	5	6	7	6	5
115°	5	5	6	6	4
117.5°	4	5	5	5	4
120°	5	6	6	5	5
122.5°	0	0	0	0	0
125°	0	0	0	0	0
127.5°	0	0	0	0	0
130°	0	0	0	0	0
132.5°	0	0	0	0	0
135°	0	0	0	0	0
137.5°	0	0	0	0	0
140°	0	0	0	0	0
142.5°	0	0	0	0	0
145°	0	0	0	0	0
147.5°	0	0	0	0	0
150°	0	0	0	0	0
152.5°	0	0	0	0	0
155°	0	0	0	0	0
157.5°	0	0	0	0	0
160°	0	0	0	0	0
162.5°	0	0	0	0	0
165°	0	0	0	0	0
167.5°	0	0	0	0	0
170°	0	0	0	0	0
172.5°	0	0	0	0	0
175°	0	0	0	0	0
177.5°	0	0	0	0	0
180°	0	0	0	0	0

(END OF REPORT)