

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: P30626

Luminaire Tested: **HBL-447T5-N-UNV-EBT1**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-41-14  
Report Number: P30626  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: HBL-447T5-N-UNV-EBT1  
Description: METALUX F-BAY HBL SERIES, OPEN BODY FLUORESCENT LUMINAIRE,  
WITH A NARROW DISTRIBUTION SPECULAR ALUMINUM REFLECTOR, NO UPLIGHT  
Light Source: (6) BIPIN T5 LINEAR FLUORESCENT LAMP 4100K - 4285 LUMENS EA  
GE F54T5-47W 841-ECO 47W  
Ballast/Driver: GE ELECTRONIC BALLAST  
GE 454MVPS90E

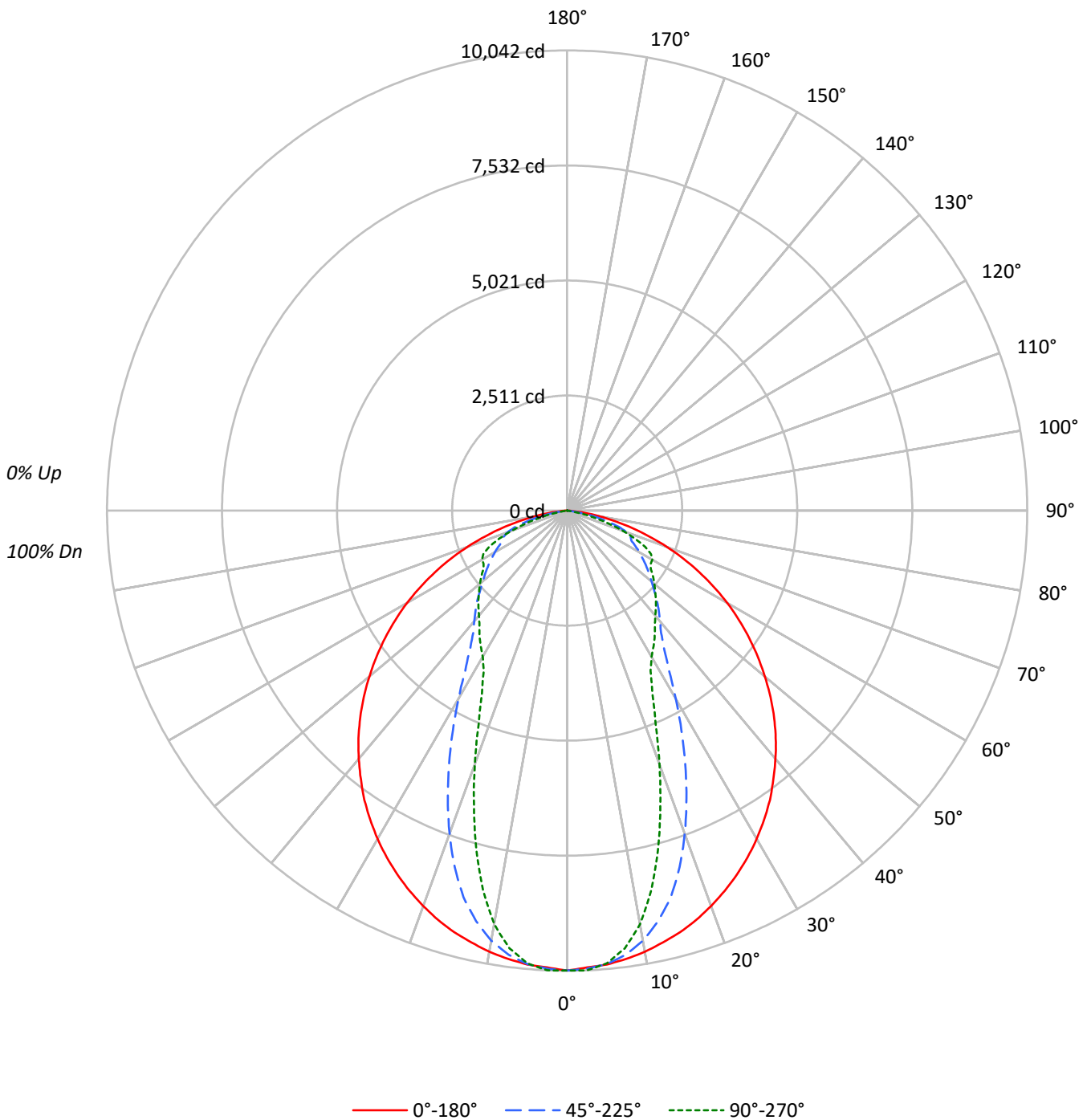
**Summary**

Lumens per Lamp: 4285 (4 lamps)  
Luminaire Lumens: 17025.5 lumens  
Efficiency: 99.3%  
Efficacy: 82.3 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 0.71 / 0.89  
Luminous Opening: Rectangular (W 1.23' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 206.8  
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	118	118	118	118	116	116	116	116	110	110	110	106	106	106	101	101	101	99
1	109	105	101	98	107	103	99	96	99	96	93	95	93	90	91	89	88	86
2	100	93	87	82	98	91	85	81	88	83	79	84	80	77	81	78	75	73
3	92	83	75	69	90	81	74	69	78	72	68	76	71	66	73	69	65	63
4	85	74	66	60	83	73	65	60	70	64	59	68	63	58	66	61	57	55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	73	61	53	47	72	60	52	47	58	51	46	57	51	46	55	50	46	44
7	69	56	48	42	67	55	47	42	54	47	42	52	46	41	51	45	41	39
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	35	45	39	35	44	38	34	33
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30

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

	0°	45°	90°
0°	21974	21974	21974
5°	21851	21827	21796
10°	21735	21181	20376
15°	21588	19802	17370
20°	21392	17487	13715
25°	21173	14725	10609
30°	20916	11965	9305
35°	20614	9862	8908
40°	20217	8999	8554
45°	19781	8579	8477
50°	19185	8178	8464
55°	18519	8035	8496
60°	17681	7969	9388
65°	16489	7998	9749
70°	14799	8891	8232
75°	12443	7621	5456
80°	9254	4375	1336
85°	4245	50	0



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	933.9	5.5	5.4	0°	10037	10037	10037	10037	10037	
10°-20°	2410.4	14.2	14.1	5°	9943	9953	9932	9888	9918	944
20°-30°	2941.1	17.3	17.2	15°	9525	9371	8737	7944	7664	2686
30°-40°	2937.1	17.3	17.1	25°	8765	8116	6096	4725	4392	4039
40°-50°	2701.9	15.9	15.8	35°	7713	6163	3690	3364	3333	4819
50°-60°	2275.0	13.4	13.3	45°	6389	3953	2771	2733	2738	4922
60°-70°	1800.5	10.6	10.5	55°	4852	2269	2105	2198	2226	4334
70°-80°	918.1	5.4	5.4	65°	3183	1398	1544	1854	1882	3144
80°-90°	107.2	0.6	0.6	75°	1471	772	901	719	645	1568
90°-100°	0.3	0.0	0.0	85°	169	100	2	1	0	262
100°-110°	0.0	0.0	0.0	90°	4	1	2	1	5	5
110°-120°	0.0	0.0	0.0	95°	0	0	0	0	0	0
120°-130°	0.0	0.0	0.0	105°	0	0	0	0	0	0
130°-140°	0.0	0.0	0.0	115°	0	0	0	0	0	0
140°-150°	0.0	0.0	0.0	125°	0	0	0	0	0	0
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°	6285.4	36.9	36.7	165°	0	0	0	0	0	0
0°-40°	9222.5	54.2	53.8	175°	0	0	0	0	0	0
0°-60°	14199.4	83.4	82.8	180°	0	0	0	0	0	0
0°-90°	17025.2	100.0	99.3							
90°-120°	0.3	0.0	0.0							
90°-150°	0.3	0.0	0.0							
90°-180°	0.0	0.0	0.0							
0°-180°	17025.5	100.0	99.3							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	10037	10037	10037	10037	10037
2.5°	9980	9994	10006	10002	10042
5°	9943	9953	9932	9888	9918
7.5°	9869	9865	9778	9644	9634
10°	9777	9738	9528	9251	9166
12.5°	9654	9571	9177	8673	8483
15°	9525	9371	8737	7944	7664
17.5°	9367	9120	8160	7119	6765
20°	9182	8829	7506	6274	5887
22.5°	8984	8492	6804	5450	5051
25°	8765	8116	6096	4725	4392
27.5°	8530	7687	5402	4145	3942
30°	8274	7208	4733	3766	3681
32.5°	7998	6694	4140	3543	3509
35°	7713	6163	3690	3364	3333
37.5°	7395	5598	3364	3173	3143
40°	7074	5038	3149	3009	2993
42.5°	6739	4482	2956	2862	2864
45°	6389	3953	2771	2733	2738
47.5°	6018	3432	2574	2577	2606
50°	5633	2962	2401	2437	2485
52.5°	5248	2574	2251	2316	2364
55°	4852	2269	2105	2198	2226
57.5°	4447	2029	1957	2057	2163
60°	4038	1807	1820	1997	2144
62.5°	3604	1593	1680	1963	2064
65°	3183	1398	1544	1854	1882
67.5°	2752	1229	1499	1643	1603
70°	2312	1060	1389	1345	1286
72.5°	1876	903	1181	1029	967
75°	1471	772	901	719	645
77.5°	1083	674	624	422	350
80°	734	535	347	156	106
82.5°	416	312	100	13	5
85°	169	100	2	1	0
87.5°	26	2	5	1	4
90°	4	1	2	1	5
92.5°	0	0	0	0	0
95°	0	0	0	0	0
97.5°	0	0	0	0	0
100°	0	0	0	0	0
102.5°	0	0	0	0	0
105°	0	0	0	0	0
107.5°	0	0	0	0	0
110°	0	0	0	0	0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	0	0	0	0	0
115°	0	0	0	0	0
117.5°	0	0	0	0	0
120°	0	0	0	0	0
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)