

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: P30628-R2

Luminaire Tested: **HBE-647T5-N-UNV-EBT2-UPL**

Issue Date: 3/3/2020



Test Information

Test Method: LM-41-14
Report Number: P30628-R2
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: HBE-647T5-N-UNV-EBT2-UPL
Description: METALUX F-BAY HBE SERIES, ENCLOSED OPEN BODY FLUORESCENT WITH METAL SIDE RAILS, NARROW DISTRIBUTION SPECULAR ALUMINUM REFLECTOR, WITH 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, 254MVPS90E

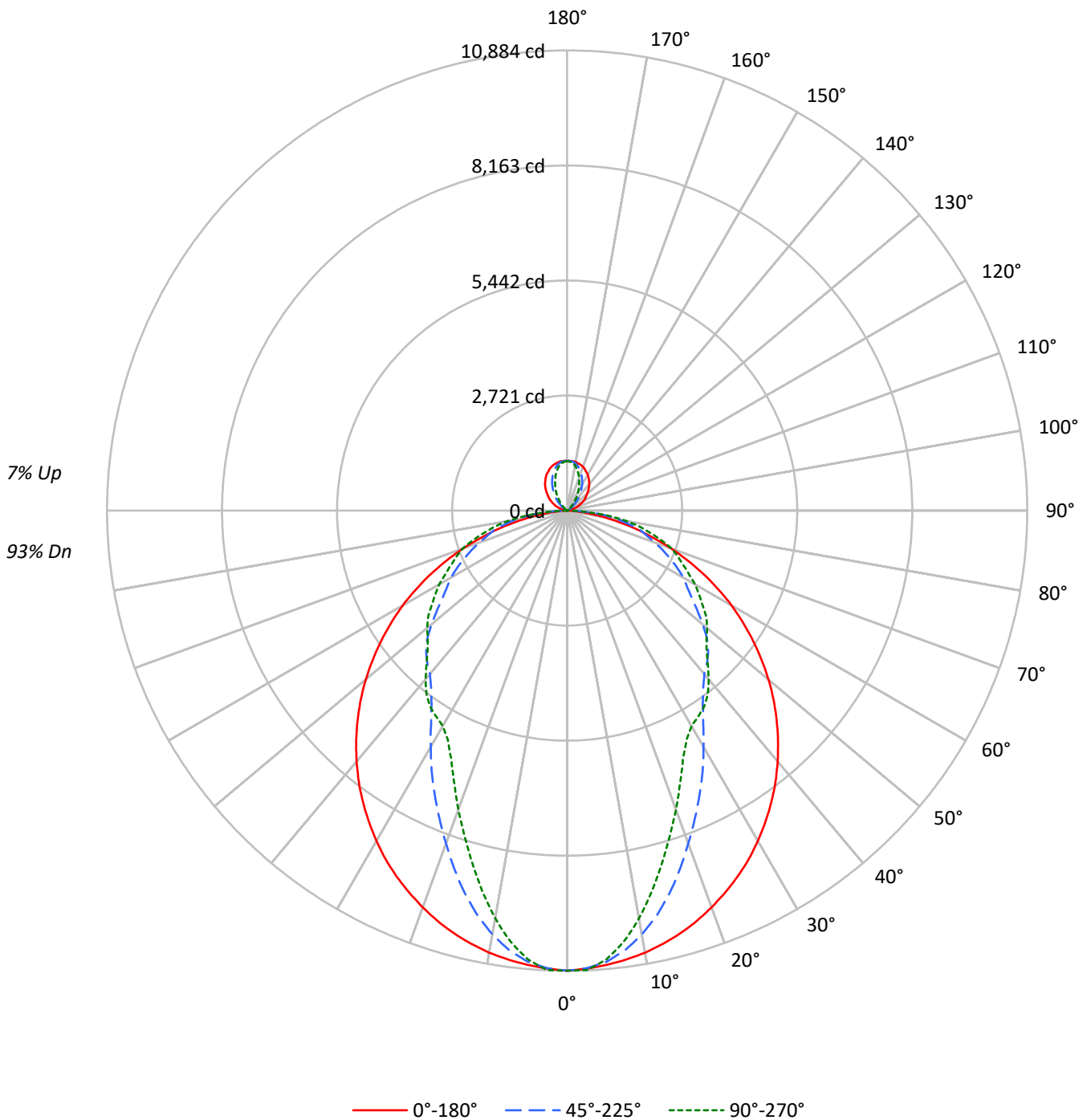
Summary

Lumens per Lamp: 4285 (6 lamps)
Luminaire Lumens: 25589.5 lumens
Efficiency: 99.5%
Efficacy: 82.3 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 0.84 / 1.07
Luminous Opening: Rectangular (W 1.23' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 311
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	50	30	10	0	
RCR																						
0	117	117	117	117	113	113	113	113	107	107	107	101	101	101	95	95	95	93				
1	107	102	97	94	103	99	95	91	93	90	87	88	86	83	84	82	80	77				
2	97	89	82	76	94	86	80	75	82	77	72	77	73	69	73	70	67	64				
3	89	78	70	64	85	76	69	63	72	66	61	69	63	59	65	61	57	55				
4	81	69	61	54	78	68	60	54	64	58	52	61	55	51	58	53	49	47				
5	75	62	54	47	72	61	53	46	58	51	45	55	49	44	53	47	43	41				
6	69	56	48	41	67	55	47	41	53	45	40	50	44	39	48	43	38	36				
7	64	51	43	37	62	50	42	36	48	41	36	46	40	35	44	38	34	32				
8	60	47	39	33	58	46	38	33	44	37	32	42	36	31	41	35	31	29				
9	56	43	35	30	54	42	35	30	41	34	29	39	33	29	38	32	28	26				
10	53	40	32	27	51	39	32	27	38	31	27	36	30	26	35	30	26	24				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	23828	23828	23828
5°	23706	23537	23422
10°	23606	22633	21775
15°	23463	21230	19594
20°	23267	19519	17525
25°	23064	17904	15660
30°	22802	16310	14872
35°	22509	14943	15108
40°	22137	14421	14884
45°	21697	14601	14446
50°	21178	14257	14720
55°	20493	13718	14928
60°	19673	13902	15290
65°	18468	13899	15660
70°	16739	14108	16847
75°	14321	15124	17230
80°	10767	15432	18041
85°	5903	14971	15046



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	1005.4	3.9	3.9	0°	10884	10884	10884	10884	10884	
10°-20°	2644.1	10.3	10.3	5°	10787	10764	10710	10634	10658	###
20°-30°	3550.0	13.9	13.8	15°	10352	10052	9367	8798	8645	2920
30°-40°	3943.6	15.4	15.3	25°	9548	8712	7412	6675	6483	4399
40°-50°	3934.6	15.4	15.3	35°	8422	6985	5591	5564	5653	5266
50°-60°	3506.3	13.7	13.6	45°	7008	5171	4716	4664	4666	5404
60°-70°	2817.0	11.0	11.0	55°	5369	3547	3594	3840	3911	4797
70°-80°	1835.5	7.2	7.1	65°	3565	2474	2683	2932	3023	3518
80°-90°	592.4	2.3	2.3	75°	1693	1365	1788	1976	2037	1798
90°-100°	15.7	0.1	0.1	85°	235	460	596	611	599	324
100°-110°	40.3	0.2	0.2	90°	3	19	37	40	39	9
110°-120°	88.0	0.3	0.3	95°	12	5	16	2	1	26
120°-130°	167.5	0.7	0.7	105°	155	16	31	17	14	164
130°-140°	283.2	1.1	1.1	115°	340	118	34	29	25	334
140°-150°	375.9	1.5	1.5	125°	527	305	119	34	24	471
150°-160°	386.4	1.5	1.5	135°	717	531	320	186	144	553
160°-170°	293.9	1.1	1.1	145°	897	771	573	435	389	560
170°-180°	109.6	0.4	0.4	155°	1034	965	832	707	667	479
0°-30°	7199.5	28.1	28.0	165°	1137	1106	1055	986	958	321
0°-40°	11143.2	43.5	43.3	175°	1174	1165	1167	1142	1143	112
0°-60°	18584.0	72.6	72.3	180°	1171	1171	1171	1171	1171	
0°-90°	23828.9	93.1	92.7							
90°-120°	144.0	0.6	0.6							
90°-150°	970.6	3.8	3.8							
90°-180°	1761.0	6.9	6.8							
0°-180°	25589.5	100.0	99.5							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	10884	10884	10884	10884	10884
2.5°	10840	10835	10835	10825	10874
5°	10787	10764	10710	10634	10658
7.5°	10710	10651	10485	10302	10282
10°	10619	10505	10181	9870	9795
12.5°	10496	10303	9802	9358	9237
15°	10352	10052	9367	8798	8645
17.5°	10182	9766	8881	8238	8071
20°	9987	9441	8378	7707	7522
22.5°	9774	9088	7891	7188	6980
25°	9548	8712	7412	6675	6483
27.5°	9299	8301	6937	6220	6113
30°	9020	7871	6452	5889	5883
32.5°	8730	7428	5991	5684	5771
35°	8422	6985	5591	5564	5653
37.5°	8095	6534	5282	5437	5468
40°	7746	6079	5046	5231	5208
42.5°	7385	5629	4894	4957	4921
45°	7008	5171	4716	4664	4666
47.5°	6622	4721	4486	4399	4469
50°	6218	4285	4186	4194	4322
52.5°	5797	3881	3878	4032	4150
55°	5369	3547	3594	3840	3911
57.5°	4934	3273	3365	3600	3698
60°	4493	3029	3175	3387	3492
62.5°	4025	2773	2937	3164	3246
65°	3565	2474	2683	2932	3023
67.5°	3082	2128	2451	2712	2829
70°	2615	1834	2204	2518	2632
72.5°	2139	1597	1976	2274	2339
75°	1693	1365	1788	1976	2037
77.5°	1256	1125	1511	1682	1754
80°	854	907	1224	1394	1431
82.5°	504	699	943	1027	1041
85°	235	460	596	611	599
87.5°	56	206	211	229	239
90°	3	19	37	40	39
92.5°	4	8	18	4	3
95°	12	5	16	2	1
97.5°	38	6	18	5	0
100°	85	21	30	18	18
102.5°	111	10	26	10	8
105°	155	16	31	17	14
107.5°	194	25	35	20	15
110°	243	46	31	18	17



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	291	82	32	24	22
115°	340	118	34	29	25
117.5°	384	156	32	24	24
120°	429	196	42	16	18
122.5°	485	260	89	33	27
125°	527	305	119	34	24
127.5°	571	362	161	54	35
130°	617	413	204	84	52
132.5°	667	475	261	137	92
135°	717	531	320	186	144
137.5°	765	592	382	239	194
140°	815	654	446	302	257
142.5°	850	706	502	361	316
145°	897	771	573	435	389
147.5°	937	820	635	500	456
150°	978	877	708	574	532
152.5°	1009	923	768	641	597
155°	1034	965	832	707	667
157.5°	1075	1014	897	786	748
160°	1097	1051	958	856	816
162.5°	1123	1082	1013	923	895
165°	1137	1106	1055	986	958
167.5°	1151	1130	1095	1039	1019
170°	1165	1145	1129	1084	1076
172.5°	1179	1167	1159	1126	1123
175°	1174	1165	1167	1142	1143
177.5°	1179	1170	1178	1155	1161
180°	1171	1171	1171	1171	1171

(END OF REPORT)