

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: P30413

Luminaire Tested: **ART-2OP-232-UNV-EB81**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P30413  
Test Lab: METALUX RESEARCH LABS  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: ART-2OP-232-UNV-EB81  
Description: METALUX RECESSED TROFFER & PARABOLIC FLUORESCENT 2X4 RETROFIT KIT WITH WHITE PAINTED REFLECTOR, & 12 CELL 2" NOMINAL DEEP STEEL LOUVER, FACETED BLADES WITH A MATTE WHITE FINISH, KIT INSTALLED IN GT TROFFER  
Light Source: (2) TWO LINEAR FLUORESCENT LAMPS, F32T8 32W - 2850 LUMENS EA, 3500K  
Ballast/Driver: -  
GE232MAX-N/ULTRA

**Summary**

Lumens per Lamp: 2850 (2 lamps)  
Luminaire Lumens: 5222.8 lumens  
Efficiency: 91.6%  
Efficacy: 98.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.48 / 1.49  
Luminous Opening: Rectangular (W 1.75' x L: 3.75' x H: 0')  
CIE Type: Direct

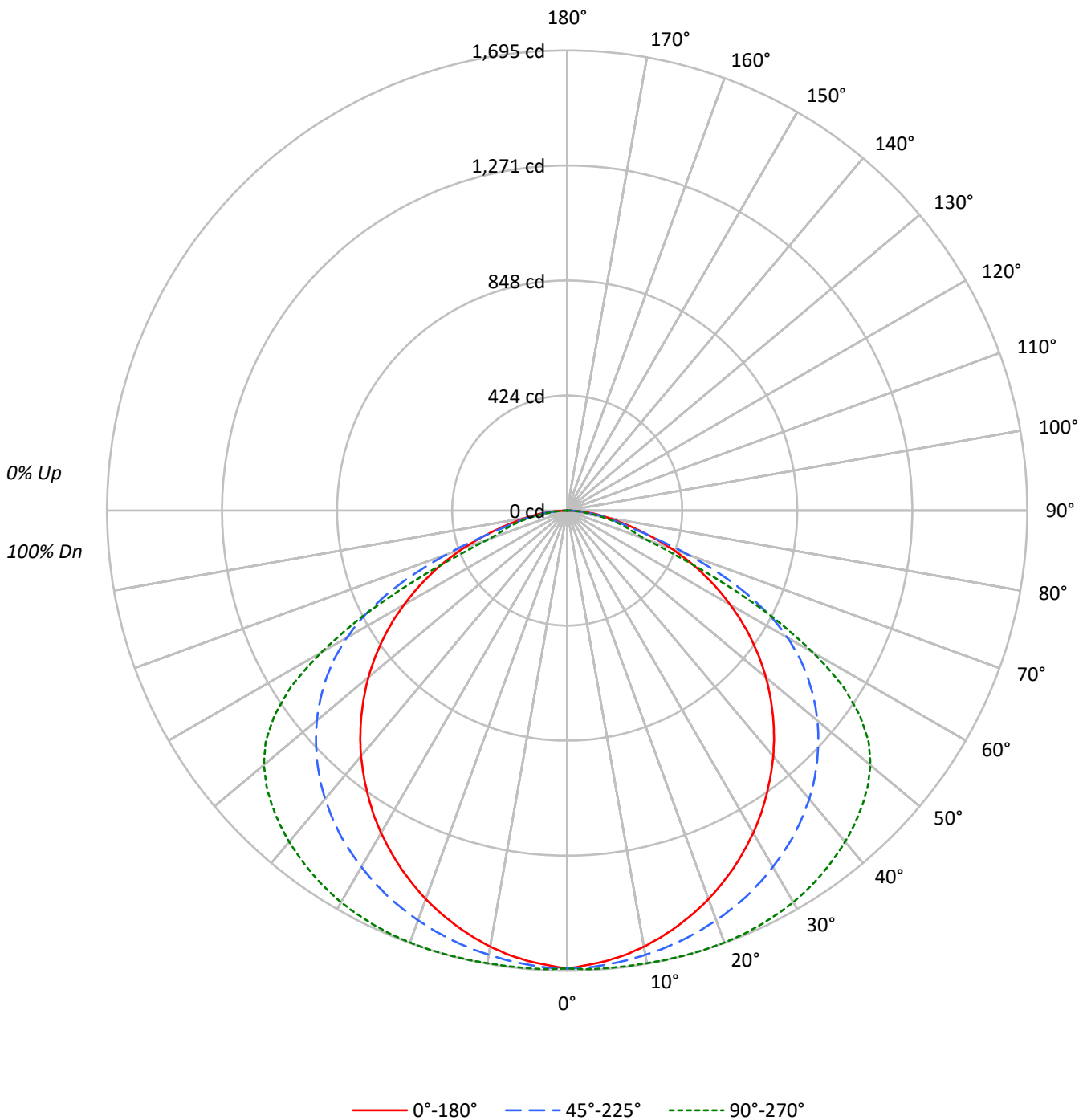
Input Watts (W): 53.1  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	109	109	109	109	107	107	107	107	102	102	102		97	97	97		93	93	93	92
1	100	96	92	88	97	94	90	87	90	87	84		86	84	82		83	81	79	77
2	91	83	77	72	88	82	76	71	78	74	69		75	71	68		73	69	66	64
3	83	73	66	60	80	72	65	59	69	63	58		66	61	57		64	60	56	54
4	76	65	56	50	73	63	56	50	61	54	49		59	53	49		57	52	48	46
5	69	57	49	43	67	56	49	43	54	48	42		53	47	42		51	46	41	39
6	64	52	43	37	62	51	43	37	49	42	37		47	41	36		46	40	36	34
7	59	47	38	33	57	46	38	33	44	37	32		43	37	32		42	36	32	30
8	55	42	34	29	53	42	34	29	40	34	29		39	33	29		38	33	28	27
9	51	39	31	26	50	38	31	26	37	30	26		36	30	26		35	30	25	24
10	48	36	28	23	47	35	28	23	34	28	23		33	27	23		33	27	23	21

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

	0°	45°	90°
0°	2767	2767	2767
5°	2741	2764	2786
10°	2716	2768	2820
15°	2686	2781	2878
20°	2658	2803	2955
25°	2628	2834	3048
30°	2597	2871	3155
35°	2563	2919	3274
40°	2529	2970	3411
45°	2489	3022	3565
50°	2439	3072	3720
55°	2371	3103	3763
60°	2277	3077	3438
65°	2146	2860	2503
70°	1957	2268	1448
75°	1667	1527	1344
80°	1474	1332	1143
85°	1336	1167	903



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	159.7	3.1	2.8	0°	1687	1687	1687	1687	1687	
10°-20°	463.1	8.9	8.1	5°	1665	1670	1679	1684	1692	158
20°-30°	723.0	13.8	12.7	15°	1582	1601	1638	1674	1695	446
30°-40°	912.7	17.5	16.0	25°	1452	1487	1566	1644	1684	669
40°-50°	1006.2	19.3	17.7	35°	1280	1340	1458	1576	1635	801
50°-60°	959.5	18.4	16.8	45°	1073	1155	1303	1455	1537	827
60°-70°	655.9	12.6	11.5	55°	829	929	1085	1238	1316	740
70°-80°	271.6	5.2	4.8	65°	553	644	737	689	645	547
80°-90°	71.0	1.4	1.2	75°	263	290	241	217	212	285
90°-100°	0.3	0.0	0.0	85°	71	69	62	56	48	76
100°-110°	0.0	0.0	0.0	90°	1	3	1	3	1	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°	1345.7	25.8	23.6	165°	0	0	0	0	0	0
0°-40°	2258.4	43.2	39.6	175°	0	0	0	0	0	0
0°-60°	4224.1	80.9	74.1	180°	0	0	0	0	0	0
0°-90°	5222.6	100.0	91.6							
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°	5222.8	100.0	91.6							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1687	1687	1687	1687	1687
2.5°	1676	1680	1685	1686	1691
5°	1665	1670	1679	1684	1692
7.5°	1650	1658	1671	1682	1692
10°	1631	1643	1662	1680	1693
12.5°	1608	1623	1651	1677	1694
15°	1582	1601	1638	1674	1695
17.5°	1554	1576	1623	1669	1695
20°	1523	1549	1606	1663	1693
22.5°	1488	1520	1587	1655	1690
25°	1452	1487	1566	1644	1684
27.5°	1412	1453	1542	1631	1676
30°	1371	1417	1516	1616	1666
32.5°	1327	1379	1488	1598	1652
35°	1280	1340	1458	1576	1635
37.5°	1231	1296	1423	1551	1615
40°	1181	1251	1387	1523	1593
42.5°	1128	1204	1347	1492	1567
45°	1073	1155	1303	1455	1537
47.5°	1015	1103	1255	1415	1502
50°	956	1049	1204	1367	1458
52.5°	894	990	1147	1311	1400
55°	829	929	1085	1238	1316
57.5°	763	864	1017	1144	1205
60°	694	795	938	1025	1048
62.5°	624	722	847	868	861
65°	553	644	737	689	645
67.5°	482	563	610	503	439
70°	408	477	473	345	302
72.5°	334	385	340	258	250
75°	263	290	241	217	212
77.5°	204	205	186	177	170
80°	156	154	141	131	121
82.5°	112	109	99	90	81
85°	71	69	62	56	48
87.5°	35	35	28	26	20
90°	1	3	1	3	1
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)