

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: P30224

Luminaire Tested: **OPG-232FB16W-UNV-HB81**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P30224  
Test Lab: METALUX RESEARCH LABS  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: OPG-232FB16W-UNV-HB81  
Description: 1'x 4' RECESSED LUMINAIRE, MATTE WHITE PAF FINISH, WITH 6 CELL  
2" DEEP, STEEL LOUVER, WITH FACETED CROSS BLADES, NO REFLECTOR  
Light Source: TWO LINEAR FLUORESCENT LAMPS, F32T8 32W - 3100 LUMENS EA  
Ballast/Driver: -

**Summary**

Lumens per Lamp: 3100 (2 lamps)  
Luminaire Lumens: 5177.2 lumens  
Efficiency: 83.5%  
Efficacy: 90.5 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.35 / 1.38  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

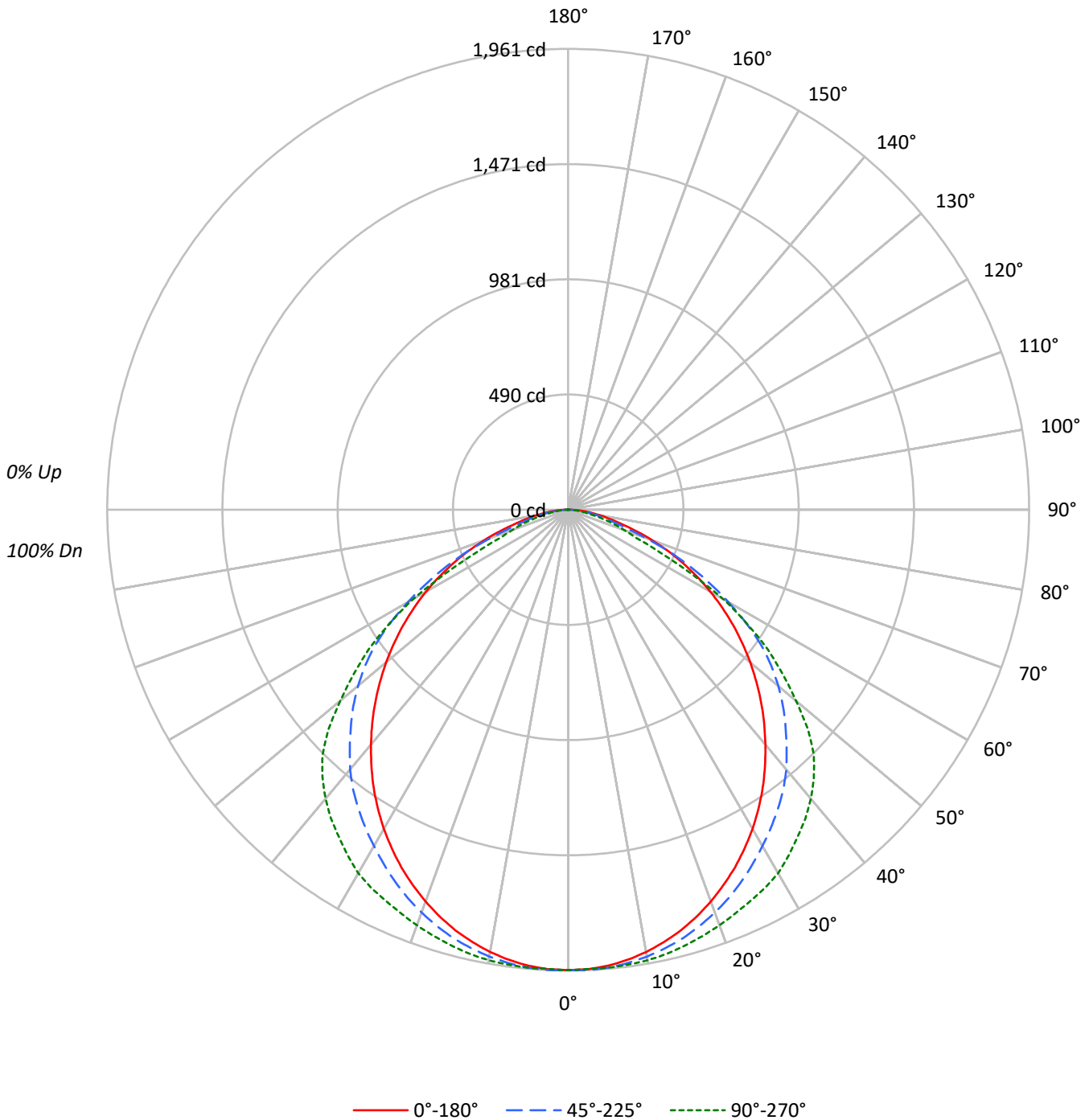
Input Watts (W): 57.2  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									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	50	30	10	0													
RCR																																					
0	99	99	99	99	97	97	97	97	93	93	93	89	89	89	85	85	85	83																			
1	92	88	85	82	89	86	83	80	83	80	78	79	77	75	76	75	73	72																			
2	84	77	72	68	82	76	71	67	73	69	65	70	67	64	68	65	62	61																			
3	77	68	62	57	75	67	61	56	65	59	55	62	58	54	60	56	53	52																			
4	70	61	54	48	68	60	53	48	58	52	47	56	51	47	54	50	46	44																			
5	65	54	47	42	63	53	47	42	52	46	41	50	45	41	49	44	40	38																			
6	60	49	42	37	58	48	41	36	47	41	36	45	40	36	44	39	35	34																			
7	56	44	37	32	54	44	37	32	43	36	32	41	36	32	40	35	32	30																			
8	52	41	34	29	50	40	33	29	39	33	29	38	32	28	37	32	28	27																			
9	48	37	31	26	47	37	30	26	36	30	26	35	30	26	34	29	26	24																			
10	45	34	28	24	44	34	28	24	33	27	23	32	27	23	32	27	23	22																			

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

	0°	45°	90°
0°	5272	5272	5272
5°	5262	5284	5284
10°	5222	5276	5320
15°	5162	5257	5349
20°	5080	5223	5389
25°	4985	5181	5451
30°	4872	5136	5550
35°	4740	5108	5585
40°	4584	5069	5642
45°	4418	4978	5625
50°	4232	4886	5300
55°	4016	4696	4860
60°	3762	4236	4123
65°	3432	3636	2744
70°	2990	2730	1991
75°	2433	2017	1612
80°	2139	1720	1240
85°	1945	1482	988



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	185.8	3.6	3.0	0°	1959	1959	1959	1959	1959	
10°-20°	532.6	10.3	8.6	5°	1948	1949	1956	1963	1956	185
20°-30°	807.8	15.6	13.0	15°	1853	1862	1887	1914	1920	522
30°-40°	977.3	18.9	15.8	25°	1679	1701	1745	1804	1836	773
40°-50°	1007.9	19.5	16.3	35°	1443	1474	1555	1648	1700	902
50°-60°	858.8	16.6	13.9	45°	1161	1202	1308	1412	1478	895
60°-70°	529.6	10.2	8.5	55°	856	910	1001	1005	1036	765
70°-80°	218.7	4.2	3.5	65°	539	585	571	475	431	533
80°-90°	54.9	1.1	0.9	75°	234	239	194	169	155	258
90°-100°	0.4	0.0	0.0	85°	63	59	48	37	32	67
100°-110°	0.4	0.0	0.0	90°	1	1	0	0	0	5
110°-120°	0.5	0.0	0.0	95°	1	1	0	0	0	1
120°-130°	0.4	0.0	0.0	105°	1	1	0	0	0	1
130°-140°	0.5	0.0	0.0	115°	1	1	1	0	1	1
140°-150°	0.6	0.0	0.0	125°	1	1	0	0	0	1
150°-160°	0.5	0.0	0.0	135°	1	0	0	0	0	1
160°-170°	0.3	0.0	0.0	145°	1	1	1	1	1	1
170°-180°	0.1	0.0	0.0	155°	2	1	1	1	1	1
0°-30°	1526.3	29.5	24.6	165°	2	1	1	1	1	1
0°-40°	2503.6	48.4	40.4	175°	1	1	1	1	1	0
0°-60°	4370.3	84.4	70.5	180°	1	1	1	1	1	
0°-90°	5173.4	99.9	83.4							
90°-120°	1.3	0.0	0.0							
90°-150°	2.8	0.1	0.0							
90°-180°	4.0	0.1	0.1							
0°-180°	5177.2	100.0	83.5							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1959	1959	1959	1959	1959
2.5°	1957	1957	1961	1964	1956
5°	1948	1949	1956	1963	1956
7.5°	1932	1935	1946	1959	1953
10°	1911	1916	1931	1948	1947
12.5°	1884	1891	1911	1934	1936
15°	1853	1862	1887	1914	1920
17.5°	1816	1828	1858	1891	1902
20°	1774	1790	1824	1864	1882
22.5°	1728	1748	1787	1835	1859
25°	1679	1701	1745	1804	1836
27.5°	1625	1651	1700	1772	1814
30°	1568	1596	1653	1741	1786
32.5°	1507	1536	1605	1700	1745
35°	1443	1474	1555	1648	1700
37.5°	1375	1408	1503	1594	1657
40°	1305	1341	1443	1541	1606
42.5°	1234	1271	1375	1480	1547
45°	1161	1202	1308	1412	1478
47.5°	1086	1130	1240	1335	1383
50°	1011	1058	1167	1235	1266
52.5°	934	986	1088	1120	1150
55°	856	910	1001	1005	1036
57.5°	778	833	898	891	901
60°	699	751	787	763	766
62.5°	619	668	680	632	589
65°	539	585	571	475	431
67.5°	459	500	464	347	310
70°	380	411	347	262	253
72.5°	305	320	253	216	206
75°	234	239	194	169	155
77.5°	181	172	151	123	110
80°	138	131	111	90	80
82.5°	100	94	78	63	55
85°	63	59	48	37	32
87.5°	30	27	19	14	13
90°	1	1	0	0	0
92.5°	1	1	0	0	0
95°	1	1	0	0	0
97.5°	1	0	0	0	0
100°	1	1	1	0	0
102.5°	0	0	0	0	0
105°	1	1	0	0	0
107.5°	1	1	0	0	0
110°	1	1	1	0	0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	0	1	0	0	0
115°	1	1	1	0	1
117.5°	1	1	0	0	0
120°	1	1	1	1	0
122.5°	1	0	0	0	0
125°	1	1	0	0	0
127.5°	1	1	0	0	0
130°	1	1	1	0	0
132.5°	2	2	1	1	1
135°	1	0	0	0	0
137.5°	1	1	0	0	1
140°	1	1	1	1	1
142.5°	1	1	1	1	1
145°	1	1	1	1	1
147.5°	1	1	1	1	1
150°	1	1	1	1	1
152.5°	1	1	1	1	1
155°	2	1	1	1	1
157.5°	1	1	1	1	1
160°	2	2	2	1	1
162.5°	2	1	1	1	1
165°	2	1	1	1	1
167.5°	1	1	1	1	1
170°	2	1	1	1	1
172.5°	1	1	1	1	1
175°	1	1	1	1	1
177.5°	1	2	1	1	1
180°	1	1	1	1	1

(END OF REPORT)