

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: P474096

Luminaire Tested: **24CZ2-110VHE-S-UNV-L840-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474096  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-110VHE-S-UNV-L840-CD1-U  
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

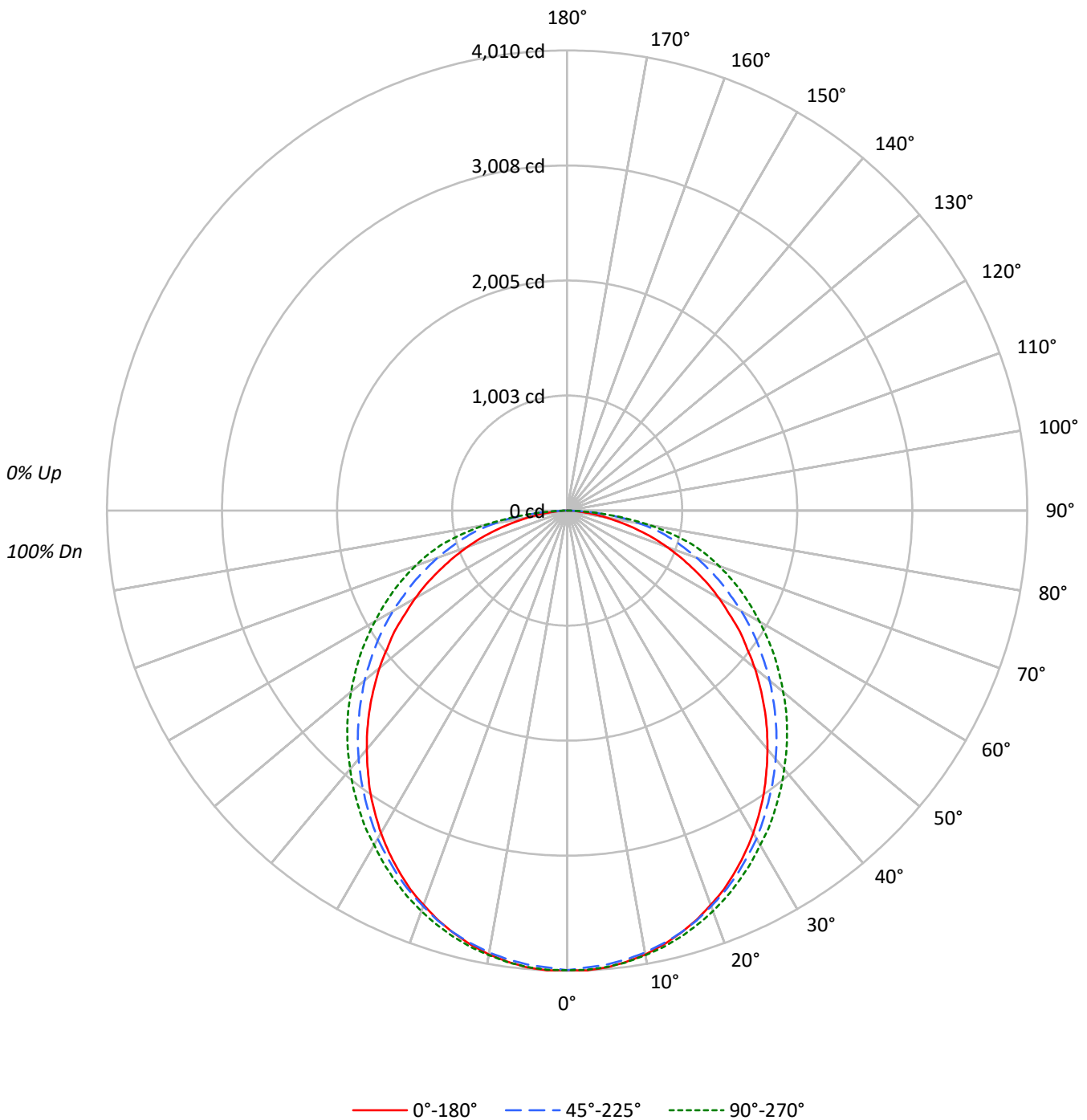
Lumens per Lamp: N/A  
Luminaire Lumens: 11473.8 lumens  
Efficiency: N/A  
Efficacy: 149.0 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 77  
Input Voltage (V): 120  
Input Current (Ain): NR  
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



TEST NUMBER: P474096

CATALOG NUMBER: 24CZ2-110VHE-S-UNV-L840-CD1-U

### Luminous Intensity Polar Plot





TEST NUMBER: P474096

CATALOG NUMBER: 24CZ2-110VHE-S-UNV-L840-CD1-U

**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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	103	99	95	105	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	90	83	77	95	88	81	76	84	79	74	81	76	72	78	74	71	68
3	89	78	70	63	87	77	69	63	74	67	62	71	65	61	68	64	59	57
4	82	69	60	54	79	68	60	53	66	58	52	63	57	52	61	55	51	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	40	51	44	39	50	44	39	37
7	64	51	42	35	63	50	41	35	48	41	35	47	40	35	45	39	34	32
8	60	46	38	32	58	45	37	31	44	37	31	43	36	31	42	35	31	29
9	56	42	34	28	54	42	34	28	41	33	28	39	33	28	38	32	28	26
10	52	39	31	26	51	39	31	26	38	30	26	37	30	25	36	30	25	24

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

	0°	45°	90°
0°	5389	5389	5389
5°	5396	5363	5391
10°	5366	5343	5374
15°	5311	5308	5353
20°	5238	5254	5319
25°	5151	5196	5277
30°	5042	5130	5227
35°	4916	5040	5197
40°	4770	4965	5167
45°	4626	4888	5157
50°	4470	4821	5144
55°	4310	4761	5172
60°	4113	4716	5208
65°	3894	4698	5334
70°	3633	4723	5524
75°	3233	4860	5820
80°	2643	4965	5680
85°	1862	4335	4423



TEST NUMBER: P474096

CATALOG NUMBER: 24CZ2-110VHE-S-UNV-L840-CD1-U

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	378.6	3.3
10°-20°	1078.4	9.4
20°-30°	1616.4	14.1
30°-40°	1925.2	16.8
40°-50°	1985.1	17.3
50°-60°	1811.4	15.8
60°-70°	1448.5	12.6
70°-80°	946.1	8.2
80°-90°	284.1	2.5
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	3073.4	26.8
0°-40°	4998.7	43.6
0°-60°	8795.2	76.7
0°-90°	11473.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	11473.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4005	4005	4005	4005	4005	
5°	3995	3988	3971	3995	3992	379
15°	3813	3814	3811	3843	3843	1075
25°	3470	3475	3500	3551	3554	1597
35°	2993	3014	3068	3146	3164	1870
45°	2431	2474	2569	2676	2710	1875
55°	1838	1890	2030	2164	2205	1637
65°	1223	1306	1476	1621	1675	1213
75°	622	726	935	1086	1120	661
85°	121	217	281	286	286	153
90°	0	0	0	0	0	



TEST NUMBER: P474096

CATALOG NUMBER: 24CZ2-110VHE-S-UNV-L840-CD1-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4004.9	4004.9	4004.9	4004.9	4004.9
2.5°	4010.5	4004.9	3984.1	4008.6	4004.9
5°	3995.4	3987.9	3970.9	3995.4	3991.7
7.5°	3965.3	3961.5	3944.6	3972.8	3969.1
10°	3927.6	3923.8	3910.6	3938.9	3933.3
12.5°	3874.8	3872.9	3863.5	3897.4	3893.7
15°	3812.6	3814.5	3810.8	3842.8	3842.8
17.5°	3741.0	3739.1	3746.7	3786.3	3782.5
20°	3658.1	3660.0	3669.4	3714.6	3714.6
22.5°	3571.4	3569.5	3590.2	3635.5	3639.2
25°	3469.6	3475.3	3499.8	3550.7	3554.4
27.5°	3360.3	3369.7	3399.9	3458.3	3464.0
30°	3245.4	3256.7	3301.9	3356.6	3364.1
32.5°	3119.1	3143.6	3185.0	3254.8	3273.6
35°	2992.8	3013.5	3068.2	3145.5	3164.3
37.5°	2853.4	2887.3	2949.5	3034.3	3058.8
40°	2715.8	2749.7	2827.0	2915.5	2941.9
42.5°	2576.3	2612.1	2700.7	2800.6	2828.9
45°	2431.2	2474.5	2568.8	2676.2	2710.1
47.5°	2282.3	2333.2	2435.0	2551.8	2589.5
50°	2135.3	2186.2	2303.0	2423.7	2457.6
52.5°	1977.0	2041.1	2165.5	2295.5	2329.4
55°	1837.5	1890.3	2029.8	2163.6	2205.0
57.5°	1673.6	1745.2	1894.1	2029.8	2069.3
60°	1528.4	1594.4	1752.7	1890.3	1935.5
62.5°	1381.4	1449.3	1607.6	1764.0	1805.5
65°	1223.1	1306.1	1475.7	1620.8	1675.4
67.5°	1072.4	1159.1	1332.4	1487.0	1543.5
70°	923.5	1012.1	1200.5	1358.8	1404.1
72.5°	776.5	868.8	1064.8	1219.4	1272.1
75°	621.9	725.6	934.8	1085.6	1119.5
77.5°	476.8	591.8	802.9	904.6	929.1
80°	341.1	467.4	640.8	714.3	733.1
82.5°	224.3	346.8	478.7	518.3	512.6
85°	120.6	216.7	280.8	286.5	286.5
87.5°	47.1	86.7	88.6	67.8	64.1
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)