

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: P474006

Luminaire Tested: **24CZ2-160VHE-S-UNV-L830-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474006  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-160VHE-S-UNV-L830-CD1-U  
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

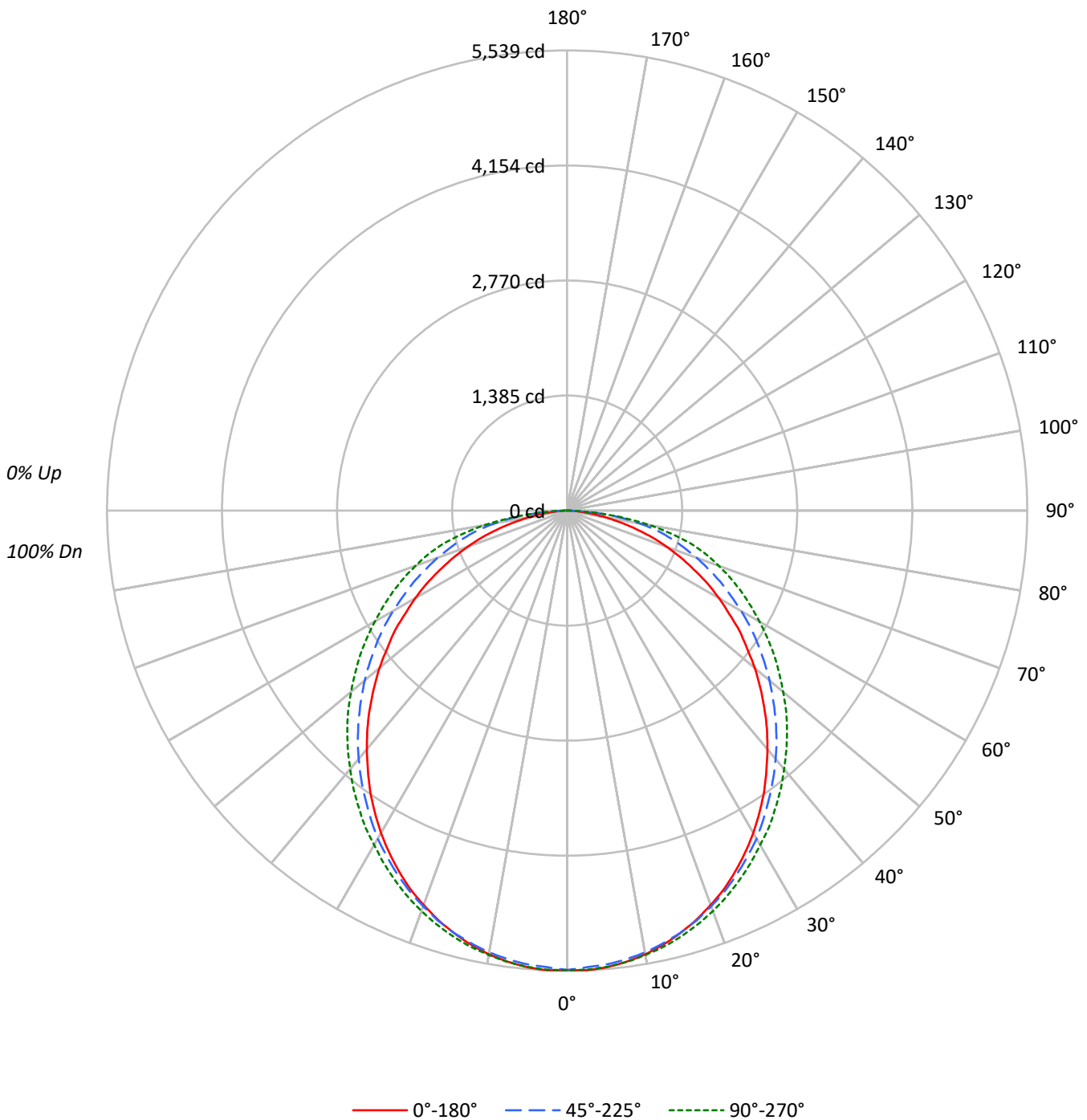
Lumens per Lamp: N/A  
Luminaire Lumens: 15845.4 lumens  
Efficiency: N/A  
Efficacy: 133.7 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 118.5  
Input Voltage (V): 120  
Input Current (Ain): 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: P474006

CATALOG NUMBER: 24CZ2-160VHE-S-UNV-L830-CD1-U

### Luminous Intensity Polar Plot





TEST NUMBER: P474006

CATALOG NUMBER: 24CZ2-160VHE-S-UNV-L830-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°	7441	7441	7441
5°	7452	7407	7445
10°	7411	7379	7421
15°	7334	7331	7392
20°	7233	7256	7345
25°	7114	7175	7287
30°	6963	7084	7218
35°	6789	6960	7178
40°	6587	6857	7136
45°	6389	6750	7122
50°	6173	6657	7104
55°	5953	6575	7143
60°	5680	6514	7193
65°	5378	6488	7366
70°	5017	6522	7628
75°	4465	6711	8037
80°	3650	6857	7845
85°	2572	5987	6107



TEST NUMBER: P474006

CATALOG NUMBER: 24CZ2-160VHE-S-UNV-L830-CD1-U

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	522.9	3.3
10°-20°	1489.2	9.4
20°-30°	2232.3	14.1
30°-40°	2658.8	16.8
40°-50°	2741.4	17.3
50°-60°	2501.5	15.8
60°-70°	2000.3	12.6
70°-80°	1306.6	8.2
80°-90°	392.3	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°	4244.4	26.8
0°-40°	6903.2	43.6
0°-60°	12146.1	76.7
0°-90°	15845.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	15845.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5531	5531	5531	5531	5531	
5°	5518	5507	5484	5518	5512	524
15°	5265	5268	5263	5307	5307	1484
25°	4792	4799	4833	4904	4909	2206
35°	4133	4162	4237	4344	4370	2582
45°	3358	3417	3548	3696	3743	2589
55°	2538	2610	2803	2988	3045	2260
65°	1689	1804	2038	2238	2314	1675
75°	859	1002	1291	1499	1546	913
85°	167	299	388	396	396	211
90°	0	0	0	0	0	



TEST NUMBER: P474006

CATALOG NUMBER: 24CZ2-160VHE-S-UNV-L830-CD1-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5530.7	5530.7	5530.7	5530.7	5530.7
2.5°	5538.6	5530.7	5502.1	5536.0	5530.7
5°	5517.7	5507.3	5483.9	5517.7	5512.5
7.5°	5476.1	5470.9	5447.5	5486.5	5481.3
10°	5424.0	5418.8	5400.6	5439.7	5431.8
12.5°	5351.2	5348.6	5335.5	5382.4	5377.2
15°	5265.3	5267.9	5262.7	5306.9	5306.9
17.5°	5166.4	5163.8	5174.2	5228.8	5223.6
20°	5051.8	5054.5	5067.5	5129.9	5129.9
22.5°	4932.1	4929.5	4958.2	5020.6	5025.8
25°	4791.6	4799.4	4833.2	4903.5	4908.7
27.5°	4640.6	4653.6	4695.3	4776.0	4783.8
30°	4481.9	4497.5	4559.9	4635.4	4645.8
32.5°	4307.5	4341.3	4398.6	4494.9	4520.9
35°	4133.1	4161.7	4237.2	4343.9	4369.9
37.5°	3940.5	3987.3	4073.2	4190.4	4224.2
40°	3750.5	3797.3	3904.1	4026.4	4062.8
42.5°	3557.9	3607.3	3729.7	3867.6	3906.7
45°	3357.5	3417.4	3547.5	3695.8	3742.7
47.5°	3151.9	3222.1	3362.7	3524.1	3576.1
50°	2948.9	3019.1	3180.5	3347.1	3393.9
52.5°	2730.2	2818.7	2990.5	3170.1	3216.9
55°	2537.6	2610.5	2803.1	2987.9	3045.2
57.5°	2311.2	2410.1	2615.7	2803.1	2857.8
60°	2110.8	2201.9	2420.5	2610.5	2673.0
62.5°	1907.8	2001.5	2220.1	2436.1	2493.4
65°	1689.2	1803.7	2037.9	2238.3	2313.8
67.5°	1480.9	1600.7	1840.1	2053.5	2131.6
70°	1275.3	1397.7	1657.9	1876.5	1939.0
72.5°	1072.3	1199.8	1470.5	1683.9	1756.8
75°	858.9	1002.0	1290.9	1499.2	1546.0
77.5°	658.5	817.2	1108.8	1249.3	1283.1
80°	471.1	645.5	884.9	986.4	1012.5
82.5°	309.7	478.9	661.1	715.7	707.9
85°	166.6	299.3	387.8	395.6	395.6
87.5°	65.1	119.7	122.3	93.7	88.5
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)