

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: P474407

Luminaire Tested: **24CZ2-165VHE-HRP-UNV-L830-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474407  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-165VHE-HRP-UNV-L830-CD1-U  
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS W/ HRP  
INSERT  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12924.8 lumens  
Efficiency: N/A  
Efficacy: 105.9 lumens/watt  
Spacing Criteria (0/90/45): 1.24 / 1.3 / 1.4  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

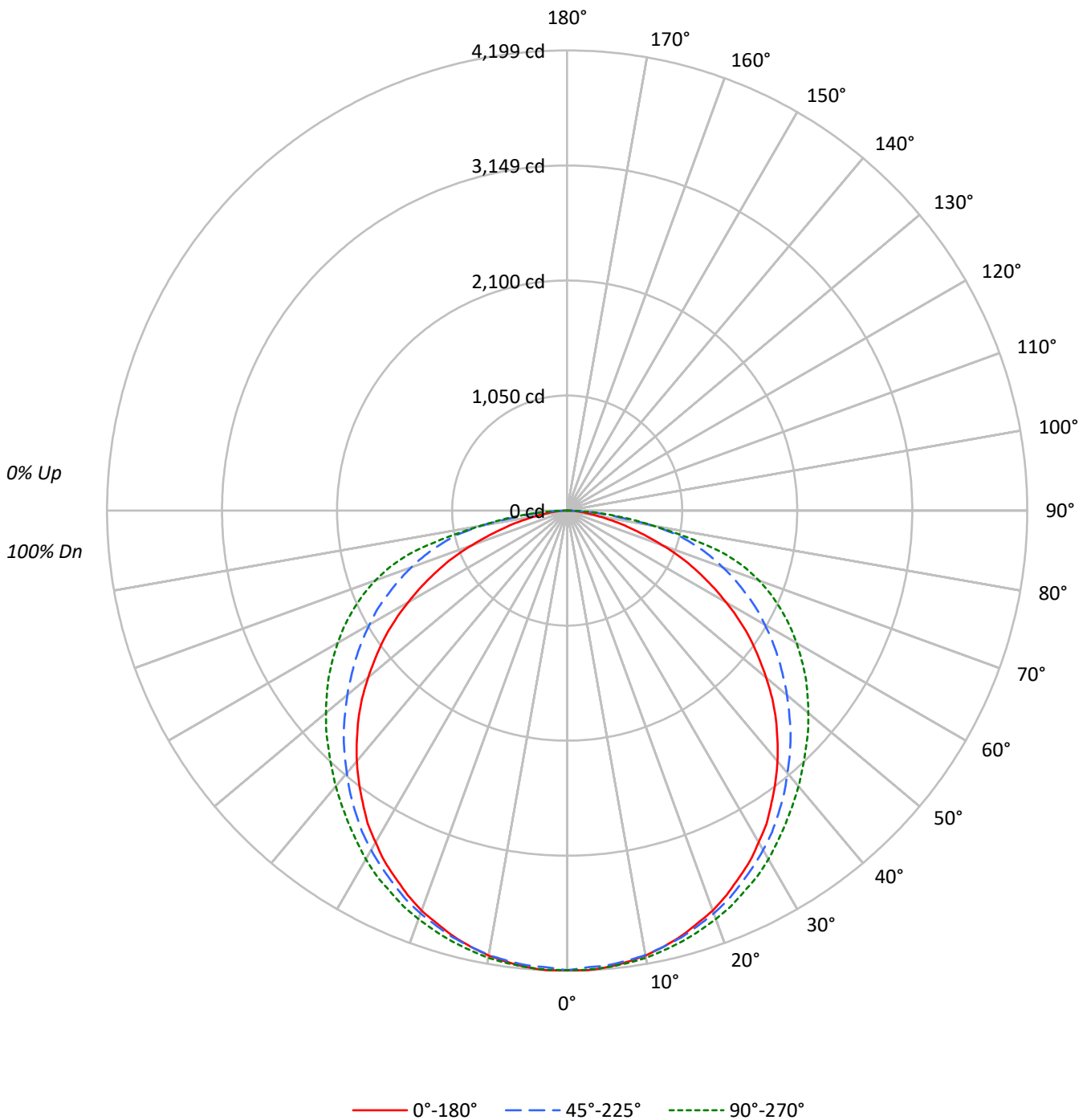
Input Watts (W): 122.1  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	108	103	98	94	105	101	96	93	96	93	90		92	90	87		89	86	84	82
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		77	73	70	67
3	89	78	69	62	86	76	68	62	73	66	61		70	64	59		68	63	58	56
4	81	68	59	52	79	67	59	52	65	57	51		62	56	50		60	54	50	48
5	74	61	52	45	72	60	51	45	58	50	44		56	49	44		54	48	43	41
6	69	55	46	39	67	54	45	39	52	44	38		50	43	38		49	42	38	36
7	63	50	41	34	62	49	40	34	47	39	34		46	39	34		44	38	33	31
8	59	45	36	30	57	44	36	30	43	36	30		42	35	30		41	34	30	28
9	55	41	33	27	54	41	33	27	40	32	27		39	32	27		38	31	27	25
10	52	38	30	25	50	38	30	25	37	30	25		36	29	24		35	29	24	23

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

	0°	45°	90°
0°	5642	5642	5642
5°	5650	5627	5650
10°	5633	5626	5663
15°	5600	5615	5668
20°	5563	5601	5679
25°	5494	5575	5687
30°	5431	5557	5708
35°	5342	5528	5715
40°	5246	5494	5769
45°	5127	5488	5859
50°	4961	5482	6015
55°	4785	5521	6232
60°	4513	5606	6508
65°	4169	5737	6874
70°	3640	5938	7323
75°	2953	6245	7567
80°	2182	6124	6124
85°	1672	4509	5093



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	397.2	3.1
10°-20°	1140.8	8.8
20°-30°	1736.7	13.4
30°-40°	2108.7	16.3
40°-50°	2227.9	17.2
50°-60°	2102.2	16.3
60°-70°	1747.9	13.5
70°-80°	1149.9	8.9
80°-90°	313.5	2.4
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°	3274.7	25.3
0°-40°	5383.4	41.7
0°-60°	9713.5	75.2
0°-90°	12924.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	12924.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4194	4194	4194	4194	4194	
5°	4183	4183	4166	4183	4183	397
15°	4020	4026	4031	4069	4069	1134
25°	3701	3722	3755	3820	3831	1707
35°	3252	3290	3365	3452	3479	2036
45°	2695	2749	2884	3024	3079	2075
55°	2040	2126	2354	2576	2657	1817
65°	1310	1461	1802	2067	2159	1294
75°	568	828	1201	1423	1456	612
85°	108	238	292	325	330	132
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4193.5	4193.5	4193.5	4193.5	4193.5
2.5°	4199.0	4193.5	4171.8	4193.5	4193.5
5°	4182.9	4182.9	4166.2	4182.9	4182.9
7.5°	4155.7	4155.7	4144.6	4166.2	4166.2
10°	4122.9	4122.9	4117.9	4144.6	4144.6
12.5°	4074.6	4079.6	4074.6	4106.8	4106.8
15°	4020.2	4025.7	4031.3	4069.1	4069.1
17.5°	3950.2	3960.8	3971.9	4014.6	4020.2
20°	3885.2	3890.2	3911.9	3960.8	3966.3
22.5°	3798.6	3814.7	3841.9	3890.2	3906.9
25°	3700.9	3722.5	3755.3	3820.3	3830.8
27.5°	3609.2	3625.3	3668.6	3739.2	3760.8
30°	3495.4	3522.6	3576.5	3647.0	3674.2
32.5°	3387.1	3414.3	3479.3	3554.8	3576.5
35°	3252.1	3289.9	3365.4	3452.1	3479.3
37.5°	3122.2	3159.9	3252.1	3349.3	3382.1
40°	2986.7	3030.0	3127.7	3241.0	3284.3
42.5°	2840.6	2900.0	3008.3	3132.7	3181.6
45°	2694.6	2749.0	2883.9	3024.4	3078.9
47.5°	2538.0	2602.9	2749.0	2916.7	2981.7
50°	2370.2	2451.3	2619.0	2802.9	2873.4
52.5°	2202.5	2294.2	2483.5	2689.0	2765.1
55°	2039.8	2126.4	2353.6	2575.7	2656.8
57.5°	1861.5	1969.8	2218.6	2456.3	2538.0
60°	1677.2	1796.6	2083.1	2331.9	2418.6
62.5°	1493.3	1628.8	1953.2	2202.5	2294.2
65°	1309.5	1461.1	1802.1	2067.0	2159.2
67.5°	1130.7	1298.4	1661.1	1926.5	2018.1
70°	925.2	1136.2	1509.4	1769.3	1861.5
72.5°	735.8	979.6	1363.4	1607.2	1688.3
75°	568.1	828.0	1201.2	1422.8	1455.6
77.5°	416.5	676.4	1033.5	1109.0	1114.6
80°	281.6	540.9	790.3	779.2	790.3
82.5°	183.8	406.0	497.6	557.6	562.6
85°	108.3	238.2	292.1	324.9	329.9
87.5°	53.9	81.1	102.7	108.3	118.8
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)