

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: P474507

Luminaire Tested: **24CZ2-165VHE-HRP-UNV-L840-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474507  
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-L840-CD1-U  
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS W/ HRP  
INSERT  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13648.2 lumens  
Efficiency: N/A  
Efficacy: 111.8 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

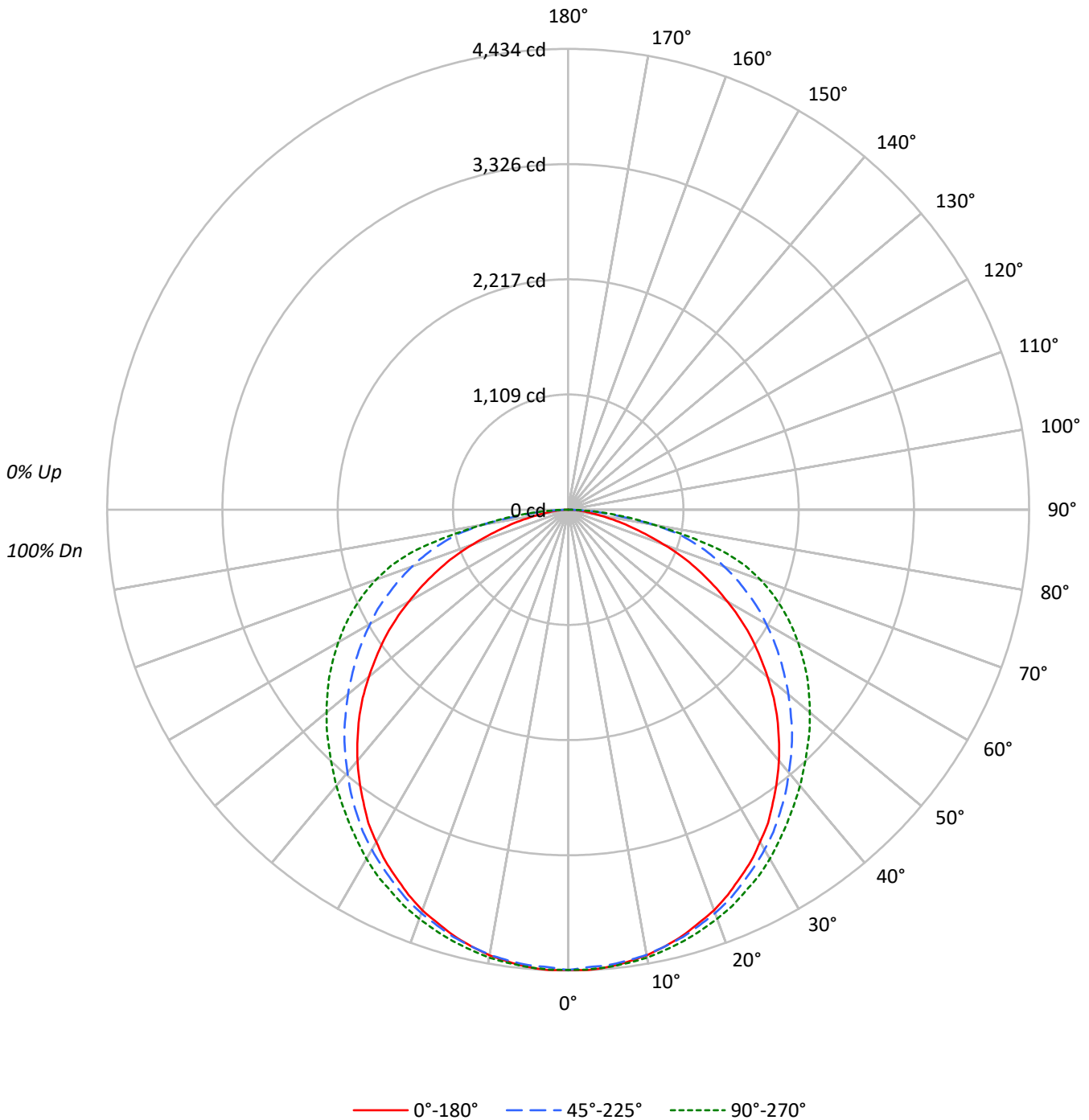
Input Watts (W): 122.1  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	5958	5958	5958
5°	5966	5942	5966
10°	5948	5941	5979
15°	5913	5930	5985
20°	5874	5915	5997
25°	5802	5887	6005
30°	5734	5867	6028
35°	5641	5837	6035
40°	5539	5801	6091
45°	5414	5795	6186
50°	5239	5789	6351
55°	5053	5830	6581
60°	4766	5919	6872
65°	4402	6059	7259
70°	3843	6270	7733
75°	3119	6594	7990
80°	2304	6466	6466
85°	1766	4763	5377



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	419.5	3.1
10°-20°	1204.6	8.8
20°-30°	1833.9	13.4
30°-40°	2226.7	16.3
40°-50°	2352.5	17.2
50°-60°	2219.9	16.3
60°-70°	1845.8	13.5
70°-80°	1214.3	8.9
80°-90°	331.0	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°	3457.9	25.3
0°-40°	5684.6	41.7
0°-60°	10257.1	75.2
0°-90°	13648.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	13648.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4428	4428	4428	4428	4428	
5°	4417	4417	4399	4417	4417	420
15°	4245	4251	4257	4297	4297	1197
25°	3908	3931	3965	4034	4045	1803
35°	3434	3474	3554	3645	3674	2150
45°	2845	2903	3045	3194	3251	2191
55°	2154	2245	2485	2720	2806	1919
65°	1383	1543	1903	2183	2280	1367
75°	600	874	1268	1502	1537	646
85°	114	252	308	343	348	140
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4428.1	4428.1	4428.1	4428.1	4428.1
2.5°	4434.0	4428.1	4405.2	4428.1	4428.1
5°	4417.0	4417.0	4399.4	4417.0	4417.0
7.5°	4388.2	4388.2	4376.5	4399.4	4399.4
10°	4353.6	4353.6	4348.4	4376.5	4376.5
12.5°	4302.6	4307.9	4302.6	4336.6	4336.6
15°	4245.2	4251.0	4256.9	4296.8	4296.8
17.5°	4171.3	4182.4	4194.1	4239.3	4245.2
20°	4102.6	4107.9	4130.8	4182.4	4188.3
22.5°	4011.2	4028.2	4056.9	4107.9	4125.5
25°	3908.0	3930.8	3965.4	4034.0	4045.2
27.5°	3811.2	3828.2	3873.9	3948.4	3971.3
30°	3691.0	3719.7	3776.6	3851.1	3879.8
32.5°	3576.6	3605.4	3674.0	3753.7	3776.6
35°	3434.1	3474.0	3553.8	3645.2	3674.0
37.5°	3296.9	3336.8	3434.1	3536.7	3571.3
40°	3153.8	3199.5	3302.8	3422.4	3468.1
42.5°	2999.6	3062.3	3176.7	3308.0	3359.6
45°	2845.3	2902.8	3045.3	3193.7	3251.2
47.5°	2680.0	2748.6	2902.8	3079.9	3148.5
50°	2502.9	2588.5	2765.6	2959.7	3034.2
52.5°	2325.8	2422.5	2622.5	2839.5	2919.8
55°	2153.9	2245.4	2485.3	2719.9	2805.5
57.5°	1965.7	2080.1	2342.8	2593.8	2680.0
60°	1771.0	1897.1	2199.7	2462.4	2553.9
62.5°	1576.9	1720.0	2062.5	2325.8	2422.5
65°	1382.8	1542.9	1903.0	2182.7	2280.0
67.5°	1194.0	1371.1	1754.0	2034.3	2131.1
70°	977.0	1199.8	1593.9	1868.4	1965.7
72.5°	777.0	1034.5	1439.7	1697.1	1782.7
75°	599.9	874.4	1268.4	1502.4	1537.0
77.5°	439.8	714.3	1091.3	1171.1	1177.0
80°	297.3	571.2	834.5	822.8	834.5
82.5°	194.1	428.7	525.4	588.8	594.1
85°	114.4	251.6	308.5	343.1	348.3
87.5°	56.9	85.6	108.5	114.4	125.5
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)