

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: P474506

Luminaire Tested: **24CZ2-160VHE-HRP-UNV-L840-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474506  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-160VHE-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: 13289.1 lumens  
Efficiency: N/A  
Efficacy: 112.1 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

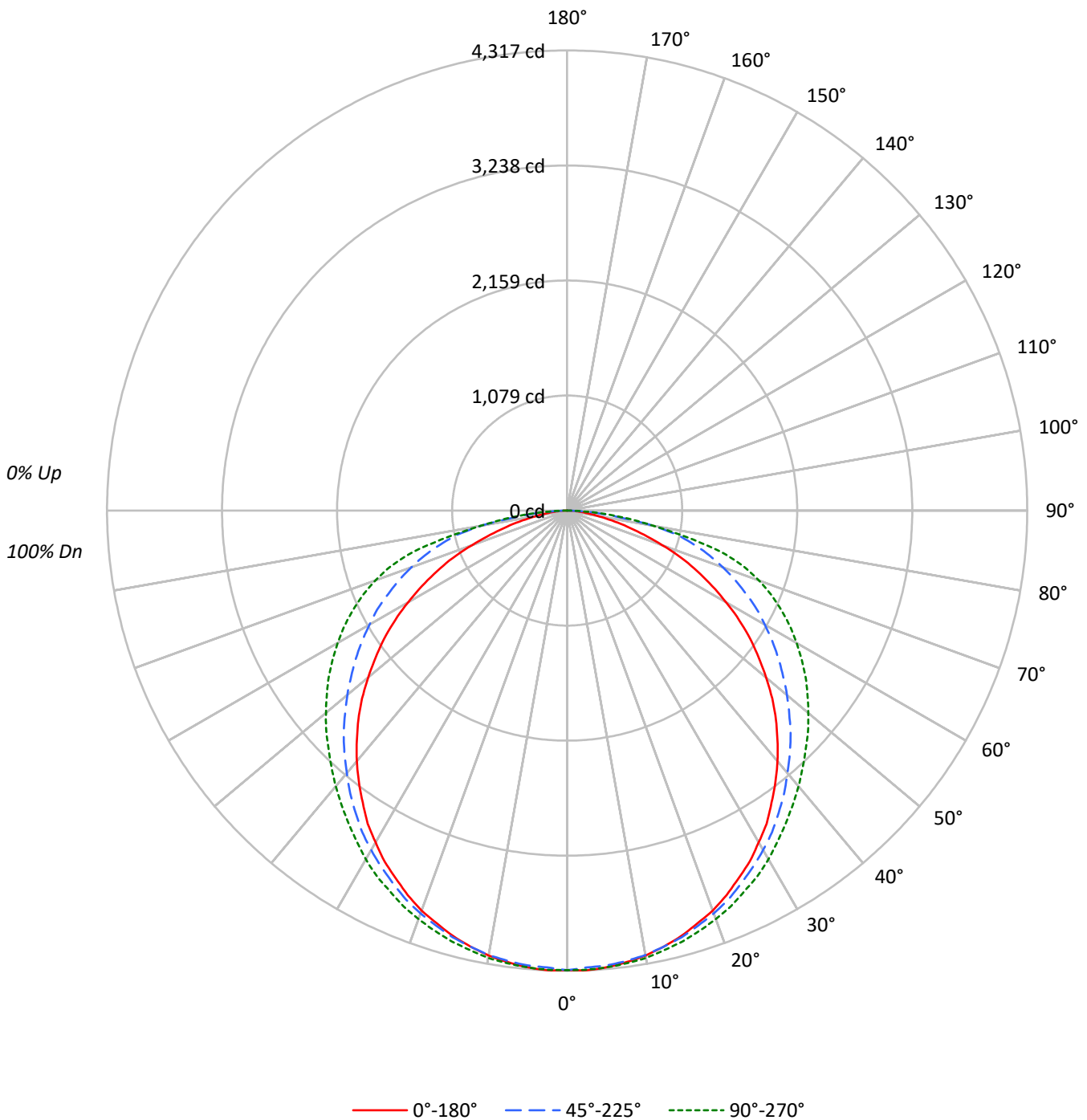
Input Watts (W): 118.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P474506

CATALOG NUMBER: 24CZ2-160VHE-HRP-UNV-L840-CD1-U

### Luminous Intensity Polar Plot





TEST NUMBER: P474506

CATALOG NUMBER: 24CZ2-160VHE-HRP-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	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°	5801	5801	5801
5°	5809	5786	5809
10°	5792	5785	5822
15°	5758	5774	5828
20°	5720	5759	5839
25°	5649	5732	5847
30°	5584	5713	5869
35°	5492	5684	5876
40°	5394	5648	5931
45°	5272	5642	6024
50°	5101	5637	6184
55°	4920	5677	6408
60°	4640	5764	6692
65°	4287	5899	7068
70°	3742	6105	7530
75°	3036	6421	7780
80°	2243	6296	6296
85°	1718	4636	5236



TEST NUMBER: P474506

CATALOG NUMBER: 24CZ2-160VHE-HRP-UNV-L840-CD1-U

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	408.4	3.1
10°-20°	1172.9	8.8
20°-30°	1785.6	13.4
30°-40°	2168.1	16.3
40°-50°	2290.7	17.2
50°-60°	2161.5	16.3
60°-70°	1797.2	13.5
70°-80°	1182.4	8.9
80°-90°	322.3	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°	3367.0	25.3
0°-40°	5535.1	41.7
0°-60°	9987.2	75.2
0°-90°	13289.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	13289.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4312	4312	4312	4312	4312	
5°	4301	4301	4284	4301	4301	408
15°	4134	4139	4145	4184	4184	1166
25°	3805	3827	3861	3928	3939	1755
35°	3344	3383	3460	3549	3577	2093
45°	2770	2826	2965	3110	3166	2134
55°	2097	2186	2420	2648	2732	1868
65°	1346	1502	1853	2125	2220	1331
75°	584	851	1235	1463	1497	629
85°	111	245	300	334	339	136
90°	0	0	0	0	0	



TEST NUMBER: P474506

CATALOG NUMBER: 24CZ2-160VHE-HRP-UNV-L840-CD1-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4311.6	4311.6	4311.6	4311.6	4311.6
2.5°	4317.3	4311.6	4289.3	4311.6	4311.6
5°	4300.8	4300.8	4283.6	4300.8	4300.8
7.5°	4272.8	4272.8	4261.4	4283.6	4283.6
10°	4239.1	4239.1	4234.0	4261.4	4261.4
12.5°	4189.4	4194.6	4189.4	4222.5	4222.5
15°	4133.5	4139.2	4144.9	4183.7	4183.7
17.5°	4061.5	4072.4	4083.8	4127.7	4133.5
20°	3994.7	3999.8	4022.1	4072.4	4078.1
22.5°	3905.6	3922.2	3950.2	3999.8	4017.0
25°	3805.1	3827.4	3861.1	3927.9	3938.7
27.5°	3710.9	3727.5	3772.0	3844.5	3866.8
30°	3593.9	3621.8	3677.2	3749.7	3777.7
32.5°	3482.5	3510.5	3577.3	3655.0	3677.2
35°	3343.8	3382.6	3460.2	3549.3	3577.3
37.5°	3210.2	3249.0	3343.8	3443.7	3477.4
40°	3070.8	3115.4	3215.9	3332.3	3376.9
42.5°	2920.7	2981.8	3093.1	3221.0	3271.2
45°	2770.5	2826.4	2965.2	3109.7	3165.6
47.5°	2609.5	2676.3	2826.4	2998.9	3065.7
50°	2437.0	2520.4	2692.8	2881.8	2954.3
52.5°	2264.6	2358.8	2553.5	2764.8	2843.0
55°	2097.3	2186.4	2419.9	2648.3	2731.7
57.5°	1914.0	2025.3	2281.1	2525.5	2609.5
60°	1724.4	1847.2	2141.8	2397.6	2486.7
62.5°	1535.4	1674.7	2008.2	2264.6	2358.8
65°	1346.4	1502.3	1852.9	2125.3	2220.0
67.5°	1162.6	1335.0	1707.9	1980.8	2075.0
70°	951.3	1168.3	1552.0	1819.2	1914.0
72.5°	756.6	1007.2	1401.8	1652.5	1735.8
75°	584.1	851.4	1235.1	1462.9	1496.6
77.5°	428.2	695.5	1062.6	1140.3	1146.0
80°	289.5	556.2	812.5	801.1	812.5
82.5°	189.0	417.4	511.6	573.3	578.4
85°	111.3	245.0	300.3	334.0	339.2
87.5°	55.4	83.4	105.6	111.3	122.2
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)