

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: FAIL-SAFE

Report Number: P30104

Luminaire Tested: **CRL-24-232-UNV-IK12**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P30104
Test Lab: METALUX RESEARCH LABS
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: CRL-24-232-UNV-IK12
Description: FAILSAFE TRISEAL CRL SERIES 2x4 2L T8
Light Source: (2) DOUBLE ENDED T8 4 FOOT LINEAR FLUORESCENT LAMPS
F32W T8 32 WATTS
Ballast/Driver: ADVANCE CENTIUM
ICN-2P32-N

Summary

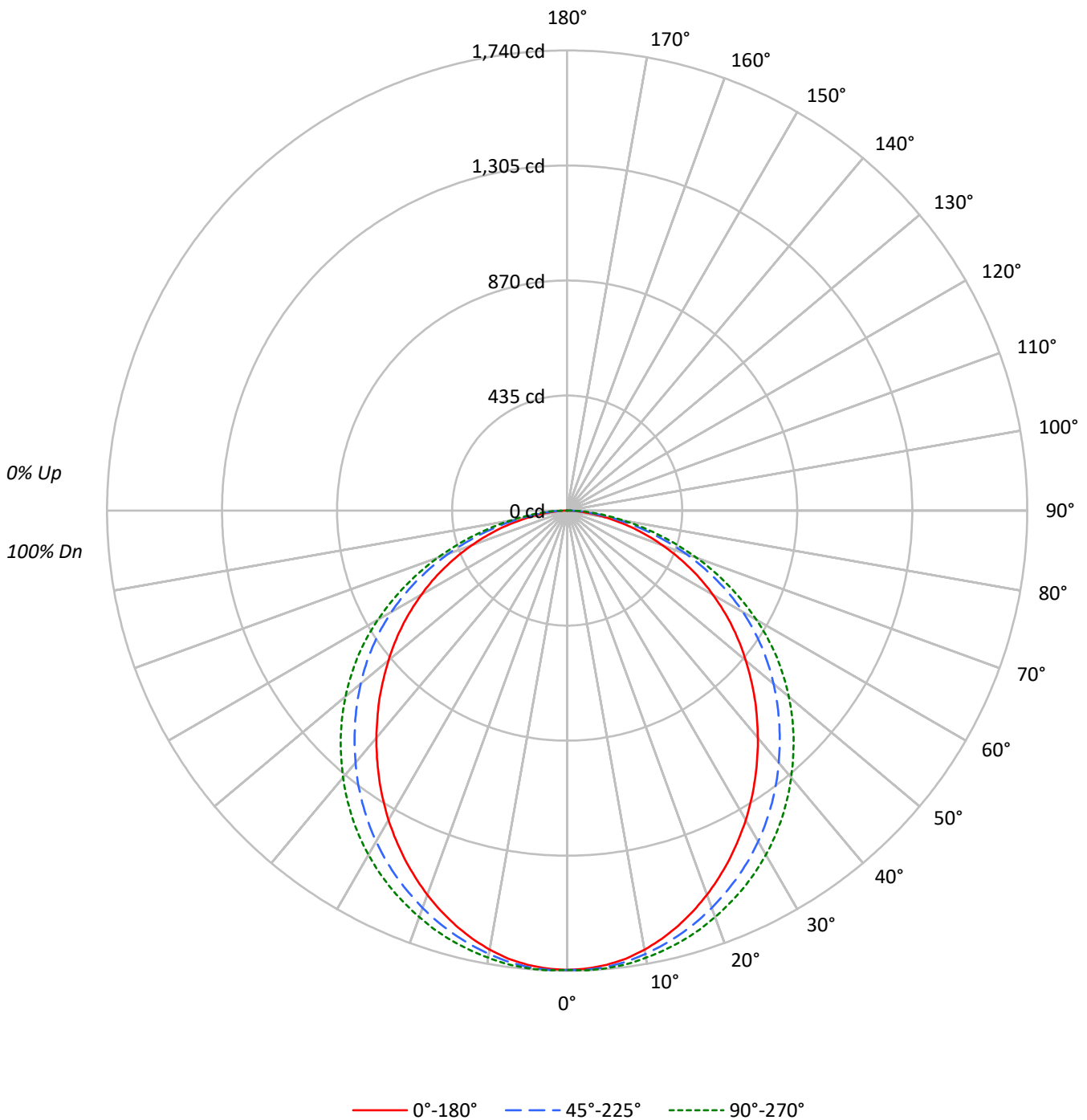
Lumens per Lamp: 3100 (2 lamps)
Luminaire Lumens: 4862.0 lumens
Efficiency: 78.4%
Efficacy: 83.8 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.28 / 1.36
Luminous Opening: Rectangular (W 1.75' x L: 3.75' x H: 0')
CIE Type: Direct

Input Watts (W): 58
Input Voltage (V): NR
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: P30104

CATALOG NUMBER: CRL-24-232-UNV-IK12

Luminous Intensity Polar Plot





TEST NUMBER: P30104

CATALOG NUMBER: CRL-24-232-UNV-IK12

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0													
RCR																																					
0	93	93	93	93	91	91	91	91	87	87	87	83	83	83	80	80	80	80	80	80	80	80	80	78													
1	85	81	78	75	83	80	77	74	76	74	71	73	71	69	70	69	67	70	69	67	70	69	67	66													
2	77	71	66	61	75	69	64	60	67	62	59	64	61	57	62	59	56	62	59	56	62	59	56	54													
3	71	62	56	51	69	61	55	50	59	53	49	56	52	48	54	51	48	54	51	48	54	51	48	46													
4	65	55	48	43	63	54	48	43	52	46	42	50	45	41	48	44	41	48	44	41	48	44	41	39													
5	59	49	42	37	58	48	42	37	47	41	36	45	40	36	44	39	35	44	39	35	44	39	35	34													
6	55	44	37	32	53	44	37	32	42	36	32	41	35	31	40	35	31	40	35	31	40	35	31	30													
7	51	40	33	28	49	39	33	28	38	32	28	37	32	28	36	31	28	36	31	28	36	31	28	26													
8	47	37	30	25	46	36	30	25	35	29	25	34	29	25	33	28	25	33	28	25	33	28	25	23													
9	44	34	27	23	43	33	27	23	32	27	23	31	26	22	31	26	22	31	26	22	31	26	22	21													
10	41	31	25	21	40	31	25	21	30	24	21	29	24	20	28	24	20	28	24	20	28	24	20	19													

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2849	2849	2849
5°	2839	2852	2860
10°	2808	2836	2860
15°	2759	2815	2860
20°	2699	2791	2856
25°	2631	2765	2852
30°	2559	2737	2847
35°	2481	2703	2837
40°	2402	2666	2822
45°	2327	2630	2809
50°	2251	2600	2792
55°	2176	2568	2768
60°	2090	2519	2713
65°	1983	2430	2624
70°	1842	2292	2494
75°	1654	2085	2307
80°	1379	1795	2059
85°	1035	1468	1844



TEST NUMBER: P30104

CATALOG NUMBER: CRL-24-232-UNV-IK12

ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	164.3	3.4	2.6	0°	1737	1737	1737	1737	1737	
10°-20°	466.9	9.6	7.5	5°	1724	1727	1732	1732	1737	163
20°-30°	700.8	14.4	11.3	15°	1625	1635	1658	1675	1684	458
30°-40°	837.3	17.2	13.5	25°	1454	1478	1528	1564	1576	669
40°-50°	864.5	17.8	13.9	35°	1239	1273	1350	1403	1417	775
50°-60°	787.9	16.2	12.7	45°	1003	1044	1134	1196	1211	774
60°-70°	604.3	12.4	9.7	55°	761	808	898	960	968	680
70°-80°	341.4	7.0	5.5	65°	511	552	626	675	676	505
80°-90°	93.2	1.9	1.5	75°	261	286	329	362	364	277
90°-100°	1.4	0.0	0.0	85°	55	64	78	93	98	64
100°-110°	0.0	0.0	0.0	90°	3	6	9	15	18	4
110°-120°	0.0	0.0	0.0	95°	0	0	0	0	0	0
120°-130°	0.0	0.0	0.0	105°	0	0	0	0	0	0
130°-140°	0.0	0.0	0.0	115°	0	0	0	0	0	0
140°-150°	0.0	0.0	0.0	125°	0	0	0	0	0	0
150°-160°	0.0	0.0	0.0	135°	0	0	0	0	0	0
160°-170°	0.0	0.0	0.0	145°	0	0	0	0	0	0
170°-180°	0.0	0.0	0.0	155°	0	0	0	0	0	0
0°-30°	1332.0	27.4	21.5	165°	0	0	0	0	0	0
0°-40°	2169.3	44.6	35.0	175°	0	0	0	0	0	0
0°-60°	3821.7	78.6	61.6	180°	0	0	0	0	0	0
0°-90°	4860.6	100.0	78.4							
90°-120°	1.4	0.0	0.0							
90°-150°	1.4	0.0	0.0							
90°-180°	1.0	0.0	0.0							
0°-180°	4862.0	100.0	78.4							



TEST NUMBER: P30104

CATALOG NUMBER: CRL-24-232-UNV-IK12

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1737	1737	1737	1737	1737
2.5°	1733	1736	1738	1737	1740
5°	1724	1727	1732	1732	1737
7.5°	1709	1713	1720	1724	1730
10°	1686	1692	1703	1711	1717
12.5°	1658	1666	1682	1694	1702
15°	1625	1635	1658	1675	1684
17.5°	1587	1600	1630	1651	1662
20°	1546	1562	1599	1625	1636
22.5°	1501	1521	1564	1596	1607
25°	1454	1478	1528	1564	1576
27.5°	1403	1430	1488	1529	1541
30°	1351	1380	1445	1490	1503
32.5°	1296	1327	1399	1449	1462
35°	1239	1273	1350	1403	1417
37.5°	1181	1217	1299	1355	1369
40°	1122	1160	1245	1303	1318
42.5°	1062	1102	1190	1250	1265
45°	1003	1044	1134	1196	1211
47.5°	942	986	1077	1140	1154
50°	882	927	1019	1082	1094
52.5°	822	868	960	1022	1032
55°	761	808	898	960	968
57.5°	699	746	834	893	899
60°	637	683	768	823	827
62.5°	575	618	698	750	752
65°	511	552	626	675	676
67.5°	447	486	552	597	599
70°	384	418	478	518	520
72.5°	322	351	402	439	442
75°	261	286	329	362	364
77.5°	201	222	257	285	289
80°	146	163	190	214	218
82.5°	97	110	130	149	155
85°	55	64	78	93	98
87.5°	22	28	37	47	52
90°	3	6	9	15	18
92.5°	0	0	0	0	0
95°	0	0	0	0	0
97.5°	0	0	0	0	0
100°	0	0	0	0	0
102.5°	0	0	0	0	0
105°	0	0	0	0	0
107.5°	0	0	0	0	0
110°	0	0	0	0	0



TEST NUMBER: P30104

CATALOG NUMBER: CRL-24-232-UNV-IK12

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0	0	0	0	0
115°	0	0	0	0	0
117.5°	0	0	0	0	0
120°	0	0	0	0	0
122.5°	0	0	0	0	0
125°	0	0	0	0	0
127.5°	0	0	0	0	0
130°	0	0	0	0	0
132.5°	0	0	0	0	0
135°	0	0	0	0	0
137.5°	0	0	0	0	0
140°	0	0	0	0	0
142.5°	0	0	0	0	0
145°	0	0	0	0	0
147.5°	0	0	0	0	0
150°	0	0	0	0	0
152.5°	0	0	0	0	0
155°	0	0	0	0	0
157.5°	0	0	0	0	0
160°	0	0	0	0	0
162.5°	0	0	0	0	0
165°	0	0	0	0	0
167.5°	0	0	0	0	0
170°	0	0	0	0	0
172.5°	0	0	0	0	0
175°	0	0	0	0	0
177.5°	0	0	0	0	0
180°	0	0	0	0	0

(END OF REPORT)