

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: P311421

Luminaire Tested: **24FCZ2-40-UNV-L82765-S-CP187-W2A-U-4500K**

Issue Date: 3/3/2020

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.

**Test Information**

Test Method: LM-79-08  
Report Number: P311421  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1805-783-1)  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 24FCZ2-40-UNV-L82765-S-CP187-W2A-U-4500K  
Description: 2'X4' TROFFER LED MODULE, SMOOTH LENS, 0.187" POLYCARB SHEET  
Light Source: (168) 4500K TUNABLE CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER  
Luminaire Equipment: 

<u>Sample No.</u>	<u>Condition</u>	<u>Description</u>
AS-5443-1	Good	WHITE TWIN R-EVOLVE FLOOD
AS-5443-2	Good	REFLECTOR
AS-5443-3	Good	DRIVER
AS-5443-4	Good	UPPER MODULE
AS-5443-5	Good	LENS
AS-5443-6	Good	DRIVER 2
AS-5443-7	Good	TRIM RING

**Summary**

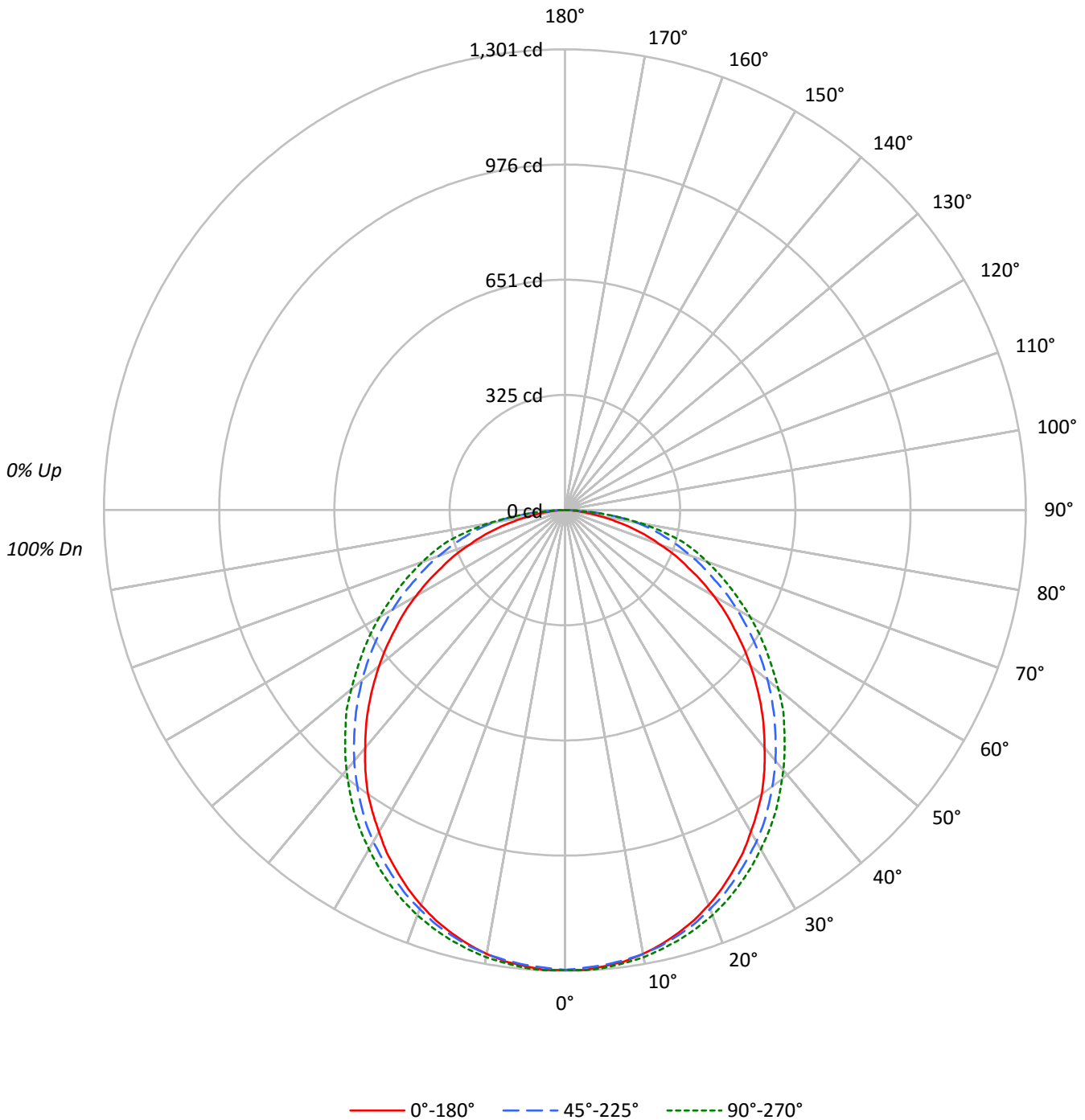
Lumens per Lamp: N/A  
Luminaire Lumens: 3696.0 lumens  
Efficiency: N/A  
Efficacy: 111.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.35  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 33.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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	99	95	106	101	97	93	97	93	90	93	90	88	89	87	85	83
2	98	90	83	77	96	88	81	76	84	79	74	81	76	72	78	74	71	69
3	89	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	42
6	70	56	47	40	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	32	43	36	31	42	36	31	29
9	56	43	34	29	55	42	34	29	41	34	28	40	33	28	39	33	28	26
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	26	24

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

	0°	45°	90°
0°	1747	1747	1747
5°	1746	1741	1752
10°	1739	1739	1752
15°	1722	1730	1748
20°	1699	1716	1743
25°	1668	1699	1732
30°	1631	1680	1718
35°	1595	1653	1705
40°	1540	1625	1685
45°	1490	1593	1666
50°	1433	1563	1647
55°	1369	1534	1630
60°	1305	1510	1627
65°	1222	1484	1637
70°	1131	1492	1681
75°	1013	1520	1776
80°	819	1610	1737
85°	616	1414	1377



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	122.9	3.3
10°-20°	351.2	9.5
20°-30°	528.0	14.3
30°-40°	628.9	17.0
40°-50°	643.7	17.4
50°-60°	579.5	15.7
60°-70°	455.1	12.3
70°-80°	295.3	8.0
80°-90°	91.4	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°	1002.1	27.1
0°-40°	1631.1	44.1
0°-60°	2854.2	77.2
0°-90°	3696.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3696.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1298	1298	1298	1298	1298	
5°	1293	1295	1289	1296	1297	123
15°	1236	1240	1242	1253	1255	349
25°	1124	1133	1145	1163	1167	518
35°	971	983	1006	1031	1038	606
45°	783	802	837	869	876	604
55°	584	609	654	688	695	523
65°	384	413	466	505	514	382
75°	195	232	292	332	342	206
85°	40	74	92	89	89	48
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1298.4	1298.4	1298.4	1298.4	1298.4
2.5°	1299.6	1299.6	1293.7	1299.6	1300.8
5°	1292.6	1294.9	1289.0	1296.1	1297.3
7.5°	1285.5	1285.5	1282.0	1289.0	1290.2
10°	1272.6	1273.8	1272.6	1280.8	1282.0
12.5°	1256.2	1258.5	1259.7	1267.9	1269.1
15°	1236.2	1239.7	1242.1	1252.6	1255.0
17.5°	1213.9	1217.4	1223.3	1235.0	1237.4
20°	1186.9	1191.6	1198.6	1213.9	1217.4
22.5°	1157.6	1162.2	1174.0	1188.1	1193.9
25°	1123.5	1132.9	1144.6	1163.4	1166.9
27.5°	1089.5	1097.7	1112.9	1132.9	1137.6
30°	1049.5	1062.5	1081.2	1101.2	1105.9
32.5°	1010.8	1023.7	1046.0	1067.2	1073.0
35°	970.9	982.6	1006.1	1030.8	1037.8
37.5°	925.1	940.4	966.2	990.8	997.9
40°	877.0	895.8	925.1	950.9	959.1
42.5°	831.2	851.1	880.5	908.7	918.1
45°	783.0	801.8	837.1	868.7	875.8
47.5°	733.7	754.9	792.4	824.1	835.9
50°	684.4	706.7	746.7	779.5	786.6
52.5°	635.1	658.6	700.9	736.1	739.6
55°	583.5	609.3	653.9	688.0	695.0
57.5°	536.5	558.8	607.0	642.2	650.4
60°	484.9	509.5	561.2	594.0	604.6
62.5°	435.5	461.4	515.4	548.3	557.6
65°	383.9	413.2	466.1	504.8	514.2
67.5°	339.3	367.5	423.8	461.4	470.8
70°	287.6	319.3	379.2	417.9	427.3
72.5°	243.0	275.9	335.8	373.3	387.4
75°	194.9	232.4	292.3	332.2	341.6
77.5°	147.9	191.4	252.4	282.9	282.9
80°	105.7	151.4	207.8	221.9	224.2
82.5°	69.3	113.9	153.8	152.6	152.6
85°	39.9	74.0	91.6	89.2	89.2
87.5°	15.3	30.5	32.9	32.9	31.7
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)