

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: P311688

Luminaire Tested: **24FCZ2-60HE-UNV-L82765-S-CP187-W2A-U-3000K**

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: P311688
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: 24FCZ2-60HE-UNV-L82765-S-CP187-W2A-U-3000K
Description: 2'X4' TROFFER LED MODULE, SMOOTH LENS, 0.187" POLYCARB SHEET
Light Source: (336) 3000K 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: 5119.0 lumens
Efficiency: N/A
Efficacy: 108.2 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

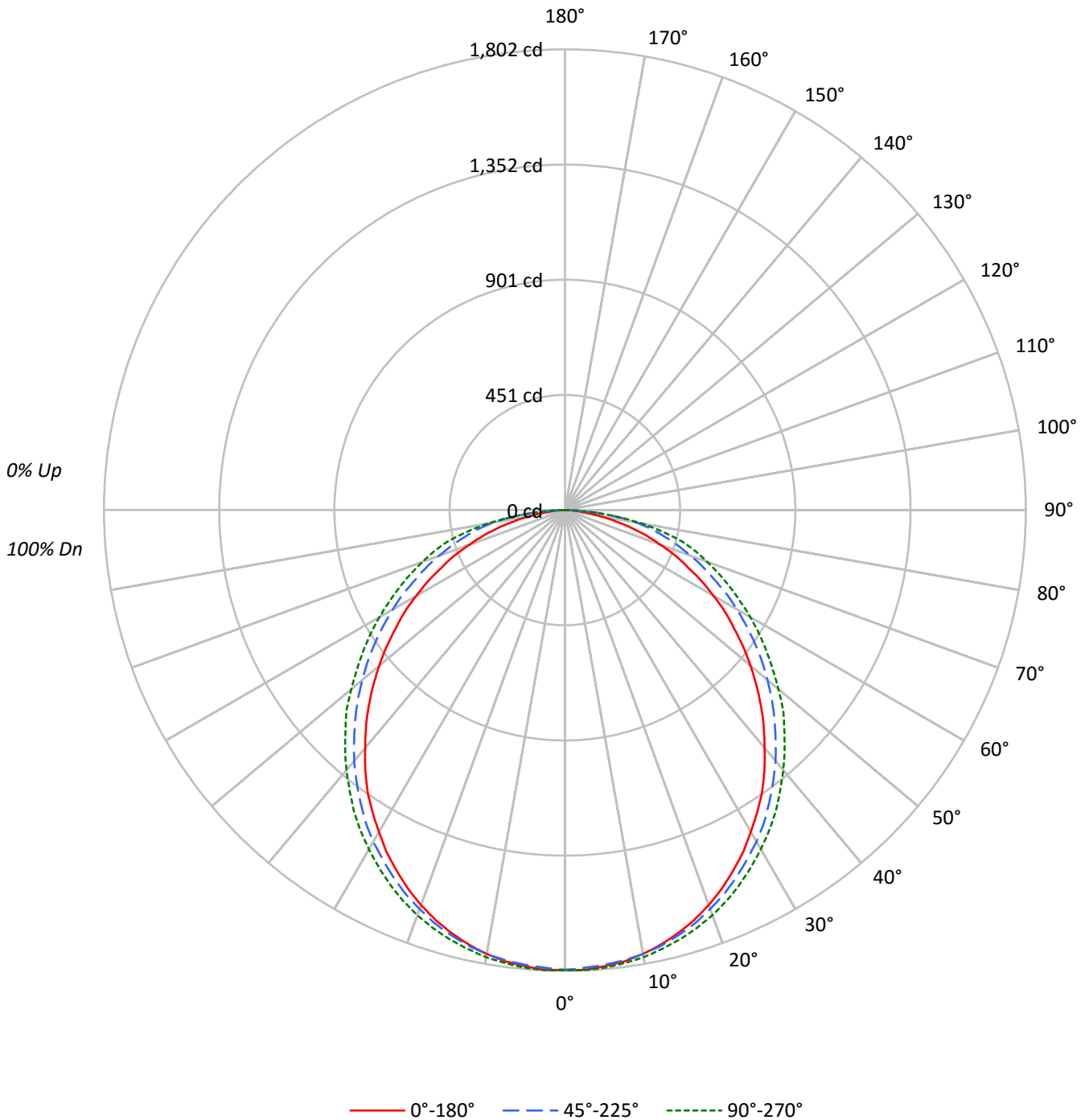
Input Watts (W): 47.3
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	2420	2420	2420
5°	2418	2411	2427
10°	2408	2408	2426
15°	2385	2396	2421
20°	2354	2377	2414
25°	2310	2354	2399
30°	2258	2327	2380
35°	2209	2289	2361
40°	2133	2250	2333
45°	2064	2206	2308
50°	1984	2165	2280
55°	1896	2125	2258
60°	1807	2091	2253
65°	1693	2055	2267
70°	1567	2066	2329
75°	1403	2105	2460
80°	1134	2230	2407
85°	854	1958	1908



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	170.2	3.3
10°-20°	486.5	9.5
20°-30°	731.3	14.3
30°-40°	871.1	17.0
40°-50°	891.5	17.4
50°-60°	802.6	15.7
60°-70°	630.3	12.3
70°-80°	409.1	8.0
80°-90°	126.5	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°	1388.0	27.1
0°-40°	2259.0	44.1
0°-60°	3953.1	77.2
0°-90°	5119.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5119.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1798	1798	1798	1798	1798	
5°	1790	1794	1785	1795	1797	170
15°	1712	1717	1720	1735	1738	483
25°	1556	1569	1585	1611	1616	717
35°	1345	1361	1394	1428	1437	839
45°	1084	1110	1159	1203	1213	836
55°	808	844	906	953	963	724
65°	532	572	646	699	712	529
75°	270	322	405	460	473	286
85°	55	102	127	124	124	67
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1798.3	1798.3	1798.3	1798.3	1798.3
2.5°	1800.0	1800.0	1791.8	1800.0	1801.6
5°	1790.2	1793.5	1785.3	1795.1	1796.7
7.5°	1780.5	1780.5	1775.6	1785.3	1787.0
10°	1762.6	1764.2	1762.6	1773.9	1775.6
12.5°	1739.8	1743.1	1744.7	1756.1	1757.7
15°	1712.2	1717.0	1720.3	1734.9	1738.2
17.5°	1681.3	1686.1	1694.3	1710.5	1713.8
20°	1643.9	1650.4	1660.1	1681.3	1686.1
22.5°	1603.2	1609.7	1626.0	1645.5	1653.6
25°	1556.1	1569.1	1585.3	1611.4	1616.2
27.5°	1508.9	1520.3	1541.4	1569.1	1575.6
30°	1453.6	1471.5	1497.5	1525.2	1531.7
32.5°	1400.0	1417.9	1448.8	1478.0	1486.1
35°	1344.7	1360.9	1393.5	1427.6	1437.4
37.5°	1281.3	1302.4	1338.2	1372.3	1382.1
40°	1214.6	1240.6	1281.3	1317.0	1328.4
42.5°	1151.2	1178.8	1219.5	1258.5	1271.5
45°	1084.5	1110.5	1159.3	1203.2	1213.0
47.5°	1016.2	1045.5	1097.5	1141.4	1157.7
50°	947.9	978.8	1034.1	1079.7	1089.4
52.5°	879.7	912.2	970.7	1019.5	1024.4
55°	808.1	843.9	905.7	952.8	962.6
57.5°	743.1	774.0	840.6	889.4	900.8
60°	671.5	705.7	777.2	822.7	837.4
62.5°	603.2	639.0	713.8	759.3	772.3
65°	531.7	572.3	645.5	699.2	712.2
67.5°	469.9	508.9	587.0	639.0	652.0
70°	398.4	442.3	525.2	578.9	591.9
72.5°	336.6	382.1	465.0	517.1	536.6
75°	269.9	321.9	404.9	460.2	473.2
77.5°	204.9	265.0	349.6	391.9	391.9
80°	146.3	209.8	287.8	307.3	310.6
82.5°	95.9	157.7	213.0	211.4	211.4
85°	55.3	102.4	126.8	123.6	123.6
87.5°	21.1	42.3	45.5	45.5	43.9
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)