

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: P311690

Luminaire Tested: **24FCZ2-60HE-UNV-L82765-S-CP187-W2A-U-4000K**

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: P311690
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-4000K
Description: 2'X4' TROFFER LED MODULE, SMOOTH LENS, 0.187" POLYCARB SHEET
Light Source: (336) 4000K 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: 5412.0 lumens
Efficiency: N/A
Efficacy: 112.3 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

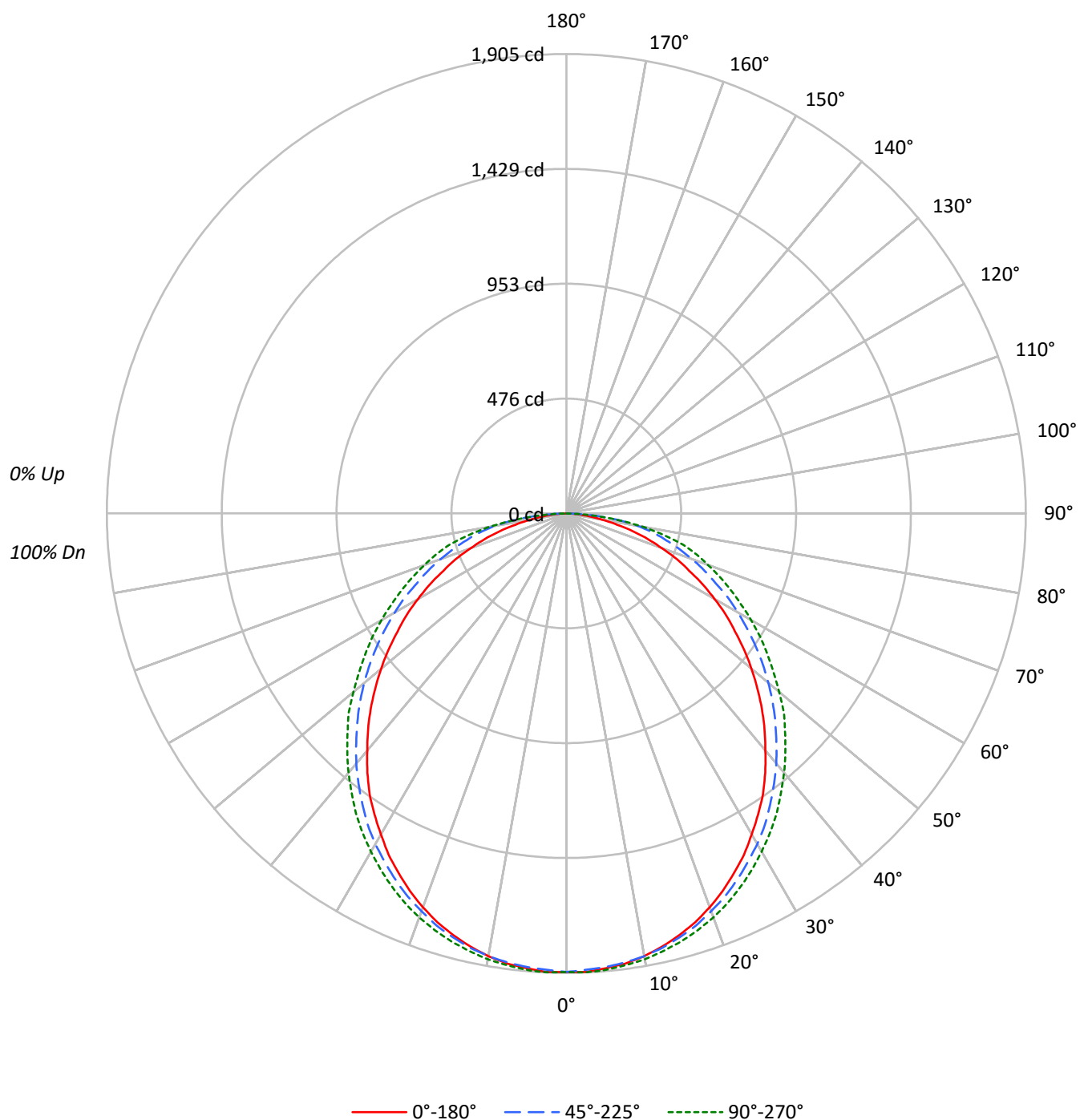
Input Watts (W): 48.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P311690

CATALOG NUMBER: 24FCZ2-60HE-UNV-L82765-S-CP187-W2A-U-4000K

Luminous Intensity Polar Plot





TEST NUMBER: P311690

CATALOG NUMBER: 24FCZ2-60HE-UNV-L82765-S-CP187-W2A-U-4000K

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				0
RW	70	50	30	10	70	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		100
1	108	103	99	95	106	101	97	93	97	93	90		93	90	88		83
2	98	90	83	77	96	88	81	76	84	79	74		81	76	72		69
3	89	79	70	64	87	77	69	63	74	67	62		71	66	61		58
4	82	70	61	54	80	68	60	54	66	59	53		63	57	52		49
5	75	62	53	46	73	61	53	46	59	51	46		57	50	45		42
6	70	56	47	40	68	55	47	40	53	46	40		52	45	40		37
7	64	51	42	36	63	50	42	36	48	41	35		47	40	35		33
8	60	46	38	32	58	46	37	32	44	37	32		43	36	31		29
9	56	43	34	29	55	42	34	29	41	34	28		40	33	28		26
10	53	39	31	26	51	39	31	26	38	31	26		37	30	26		24

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2558	2558	2558
5°	2556	2549	2566
10°	2546	2546	2565
15°	2522	2534	2560
20°	2489	2513	2553
25°	2442	2488	2537
30°	2388	2460	2516
35°	2335	2420	2496
40°	2255	2379	2467
45°	2182	2332	2440
50°	2098	2289	2411
55°	2004	2246	2387
60°	1911	2211	2382
65°	1790	2173	2397
70°	1657	2185	2461
75°	1484	2225	2600
80°	1199	2358	2544
85°	902	2070	2016



TEST NUMBER: P311690

CATALOG NUMBER: 24FCZ2-60HE-UNV-L82765-S-CP187-W2A-U-4000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	180.0	3.3
10°-20°	514.3	9.5
20°-30°	773.1	14.3
30°-40°	920.9	17.0
40°-50°	942.5	17.4
50°-60°	848.5	15.7
60°-70°	666.4	12.3
70°-80°	432.5	8.0
80°-90°	133.7	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°	1467.4	27.1
0°-40°	2388.3	44.1
0°-60°	4179.4	77.2
0°-90°	5412.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5412.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1901	1901	1901	1901	1901	
5°	1893	1896	1888	1898	1900	180
15°	1810	1815	1819	1834	1838	510
25°	1645	1659	1676	1704	1709	758
35°	1422	1439	1473	1509	1520	887
45°	1147	1174	1226	1272	1282	884
55°	854	892	958	1007	1018	766
65°	562	605	682	739	753	560
75°	285	340	428	486	500	302
85°	58	108	134	131	131	71
90°	0	0	0	0	0	



TEST NUMBER: P311690

CATALOG NUMBER: 24FCZ2-60HE-UNV-L82765-S-CP187-W2A-U-4000K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1901.3	1901.3	1901.3	1901.3	1901.3
2.5°	1903.0	1903.0	1894.4	1903.0	1904.7
5°	1892.7	1896.1	1887.5	1897.8	1899.6
7.5°	1882.4	1882.4	1877.2	1887.5	1889.2
10°	1863.5	1865.2	1863.5	1875.5	1877.2
12.5°	1839.4	1842.8	1844.5	1856.6	1858.3
15°	1810.2	1815.3	1818.8	1834.2	1837.7
17.5°	1777.5	1782.7	1791.3	1808.4	1811.9
20°	1738.0	1744.8	1755.2	1777.5	1782.7
22.5°	1695.0	1701.9	1719.1	1739.7	1748.3
25°	1645.1	1658.9	1676.1	1703.6	1708.7
27.5°	1595.3	1607.3	1629.7	1658.9	1665.8
30°	1536.8	1555.7	1583.2	1612.5	1619.3
32.5°	1480.1	1499.0	1531.7	1562.6	1571.2
35°	1421.7	1438.8	1473.2	1509.3	1519.6
37.5°	1354.6	1377.0	1414.8	1450.9	1461.2
40°	1284.1	1311.6	1354.6	1392.4	1404.5
42.5°	1217.1	1246.3	1289.3	1330.5	1344.3
45°	1146.6	1174.1	1225.7	1272.1	1282.4
47.5°	1074.4	1105.4	1160.4	1206.8	1224.0
50°	1002.2	1034.9	1093.3	1141.5	1151.8
52.5°	930.0	964.4	1026.3	1077.8	1083.0
55°	854.4	892.2	957.5	1007.4	1017.7
57.5°	785.6	818.3	888.7	940.3	952.4
60°	710.0	746.1	821.7	869.8	885.3
62.5°	637.8	675.6	754.7	802.8	816.5
65°	562.1	605.1	682.5	739.2	752.9
67.5°	496.8	538.1	620.6	675.6	689.3
70°	421.2	467.6	555.3	612.0	625.7
72.5°	355.8	404.0	491.6	546.7	567.3
75°	285.4	340.4	428.0	486.5	500.2
77.5°	216.6	280.2	369.6	414.3	414.3
80°	154.7	221.8	304.3	324.9	328.3
82.5°	101.4	166.7	225.2	223.5	223.5
85°	58.4	108.3	134.1	130.6	130.6
87.5°	22.3	44.7	48.1	48.1	46.4
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)