

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: P311781

Luminaire Tested: **24FCZ2-70HE-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: P311781
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: 24FCZ2-70HE-UNV-L82765-S-CP187-W2A-U-4500K
Description: 2'X4' TROFFER LED MODULE, SMOOTH LENS, 0.187" POLYCARB SHEET
Light Source: (336) 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: 6439.0 lumens
Efficiency: N/A
Efficacy: 109.5 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

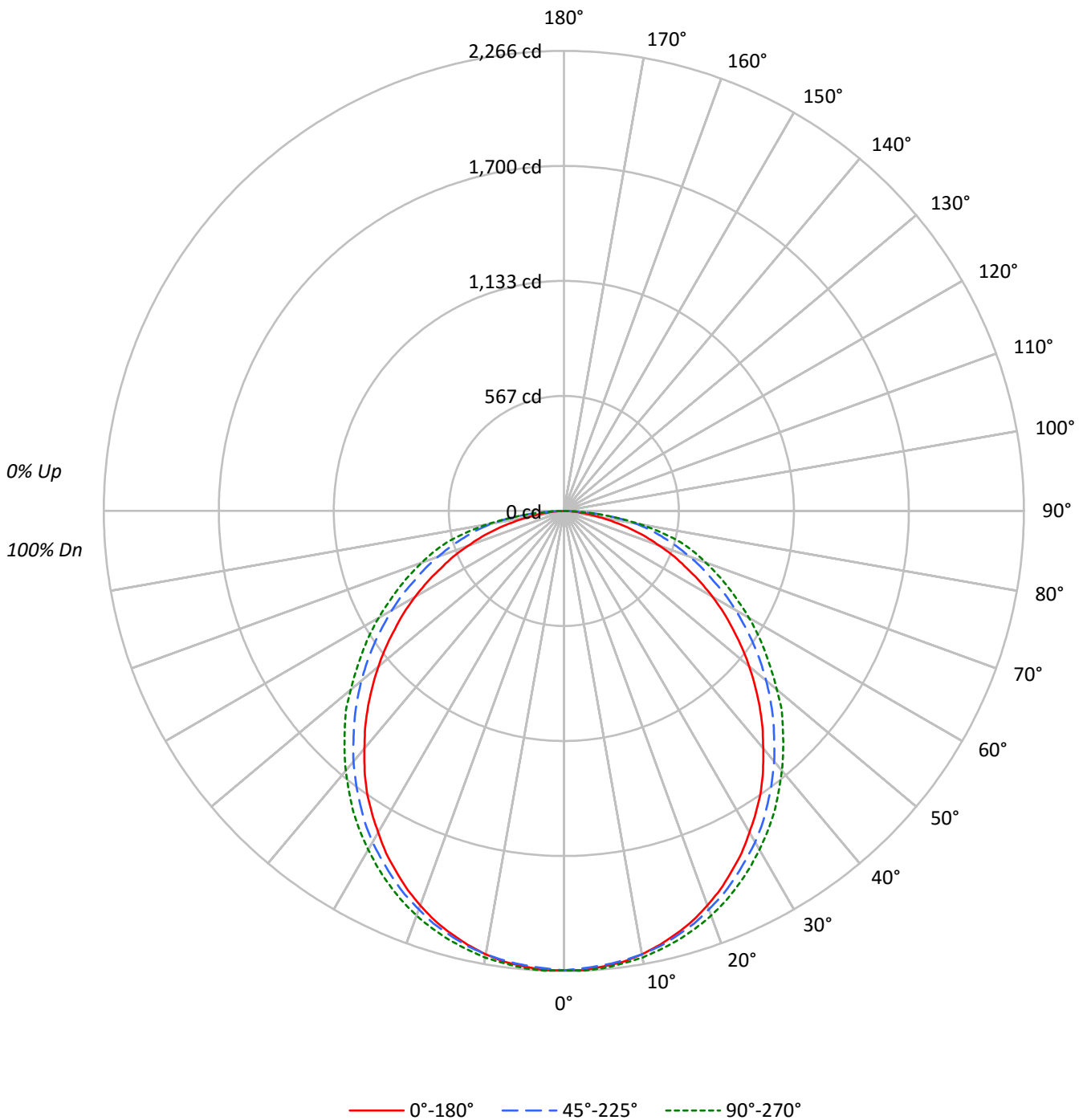
Input Watts (W): 58.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P311781

CATALOG NUMBER: 24FCZ2-70HE-UNV-L82765-S-CP187-W2A-U-4500K

Luminous Intensity Polar Plot





TEST NUMBER: P311781

CATALOG NUMBER: 24FCZ2-70HE-UNV-L82765-S-CP187-W2A-U-4500K

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°	3044	3044	3044
5°	3041	3033	3052
10°	3029	3029	3051
15°	3000	3014	3046
20°	2961	2990	3037
25°	2906	2960	3018
30°	2841	2927	2993
35°	2778	2879	2970
40°	2683	2831	2935
45°	2596	2775	2903
50°	2496	2723	2868
55°	2384	2672	2840
60°	2273	2631	2834
65°	2129	2585	2852
70°	1971	2599	2929
75°	1765	2648	3094
80°	1426	2805	3027
85°	1073	2462	2399



TEST NUMBER: P311781

CATALOG NUMBER: 24FCZ2-70HE-UNV-L82765-S-CP187-W2A-U-4500K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	214.2	3.3
10°-20°	611.9	9.5
20°-30°	919.8	14.3
30°-40°	1095.7	17.0
40°-50°	1121.4	17.4
50°-60°	1009.6	15.7
60°-70°	792.8	12.3
70°-80°	514.6	8.0
80°-90°	159.1	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°	1745.9	27.1
0°-40°	2841.6	44.1
0°-60°	4972.5	77.2
0°-90°	6439.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6439.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2262	2262	2262	2262	2262	
5°	2252	2256	2246	2258	2260	214
15°	2154	2160	2164	2182	2186	607
25°	1957	1974	1994	2027	2033	902
35°	1691	1712	1753	1796	1808	1055
45°	1364	1397	1458	1514	1526	1052
55°	1016	1062	1139	1198	1211	911
65°	669	720	812	880	896	666
75°	340	405	509	579	595	359
85°	70	129	160	155	155	84
90°	0	0	0	0	0	



TEST NUMBER: P311781

CATALOG NUMBER: 24FCZ2-70HE-UNV-L82765-S-CP187-W2A-U-4500K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2262.1	2262.1	2262.1	2262.1	2262.1
2.5°	2264.1	2264.1	2253.9	2264.1	2266.2
5°	2251.8	2255.9	2245.7	2258.0	2260.0
7.5°	2239.6	2239.6	2233.4	2245.7	2247.7
10°	2217.1	2219.1	2217.1	2231.4	2233.4
12.5°	2188.4	2192.5	2194.6	2208.9	2210.9
15°	2153.7	2159.8	2163.9	2182.3	2186.4
17.5°	2114.8	2120.9	2131.2	2151.6	2155.7
20°	2067.8	2075.9	2088.2	2114.8	2120.9
22.5°	2016.6	2024.8	2045.3	2069.8	2080.0
25°	1957.3	1973.7	1994.1	2026.9	2033.0
27.5°	1898.0	1912.3	1938.9	1973.7	1981.9
30°	1828.5	1851.0	1883.7	1918.5	1926.6
32.5°	1761.0	1783.5	1822.3	1859.1	1869.4
35°	1691.4	1711.9	1752.8	1795.7	1808.0
37.5°	1611.7	1638.3	1683.3	1726.2	1738.5
40°	1527.8	1560.5	1611.7	1656.7	1671.0
42.5°	1448.0	1482.8	1533.9	1583.0	1599.4
45°	1364.2	1396.9	1458.3	1513.5	1525.8
47.5°	1278.3	1315.1	1380.6	1435.8	1456.2
50°	1192.4	1231.2	1300.8	1358.1	1370.3
52.5°	1106.5	1147.4	1221.0	1282.4	1288.5
55°	1016.5	1061.5	1139.2	1198.5	1210.8
57.5°	934.7	973.5	1057.4	1118.8	1133.1
60°	844.7	887.6	977.6	1034.9	1053.3
62.5°	758.8	803.8	897.9	955.1	971.5
65°	668.8	719.9	812.0	879.5	895.8
67.5°	591.1	640.2	738.3	803.8	820.2
70°	501.1	556.3	660.6	728.1	744.5
72.5°	423.4	480.6	584.9	650.4	674.9
75°	339.5	405.0	509.3	578.8	595.2
77.5°	257.7	333.4	439.7	492.9	492.9
80°	184.1	263.8	362.0	386.6	390.6
82.5°	120.7	198.4	267.9	265.9	265.9
85°	69.5	128.9	159.5	155.4	155.4
87.5°	26.6	53.2	57.3	57.3	55.2
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)