

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: P311024

Luminaire Tested: **24FCZ2-60HE-UNV-L82765-CP250-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: P311024
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1805-783-15)
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-CP250-W2A-U-4000K
Description: 2'X4' TROFFER LED MODULE, RIBBED LENS, 0.250" 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: 5109.0 lumens
Efficiency: N/A
Efficacy: 106.0 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.29 / 1.38
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

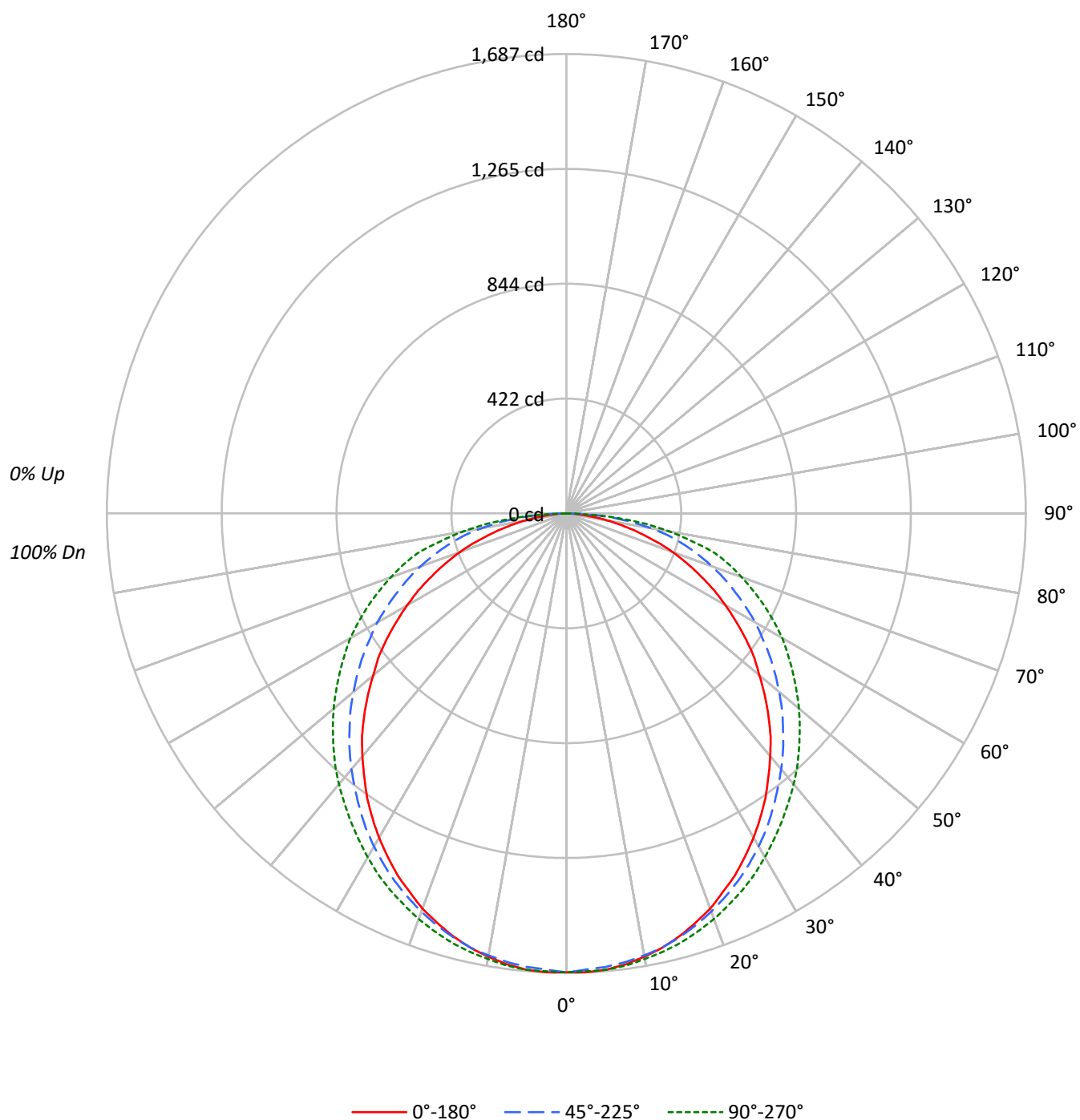
Input Watts (W): 48.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P311024

CATALOG NUMBER: 24FCZ2-60HE-UNV-L82765-CP250-W2A-U-4000K

Luminous Intensity Polar Plot





TEST NUMBER: P311024

CATALOG NUMBER: 24FCZ2-60HE-UNV-L82765-CP250-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	98	94	105	100	96	92	96	92	89		92	89	87		82
2	98	89	81	75	95	87	80	74	83	78	73		80	75	71		67
3	89	77	69	62	86	76	68	61	73	66	60		70	64	59		56
4	81	68	59	52	79	67	58	52	64	57	51		62	56	50		47
5	74	61	52	45	72	60	51	44	58	50	44		56	49	43		41
6	69	55	46	39	67	54	45	39	52	44	38		50	43	38		36
7	64	50	41	34	62	49	40	34	47	39	34		46	39	34		31
8	59	45	37	31	57	45	36	30	43	36	30		42	35	30		28
9	55	41	33	27	54	41	33	27	40	32	27		39	32	27		25
10	52	38	30	25	50	38	30	25	37	30	25		36	29	25		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2267	2267	2267
5°	2271	2257	2271
10°	2258	2251	2270
15°	2238	2243	2271
20°	2211	2228	2269
25°	2177	2212	2267
30°	2136	2194	2265
35°	2094	2172	2266
40°	2045	2155	2281
45°	1997	2142	2300
50°	1937	2136	2335
55°	1889	2139	2382
60°	1815	2158	2463
65°	1732	2180	2553
70°	1640	2247	2694
75°	1463	2344	2943
80°	1247	2483	3008
85°	889	2459	2879



TEST NUMBER: P311024

CATALOG NUMBER: 24FCZ2-60HE-UNV-L82765-CP250-W2A-U-4000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.5	3.1
10°-20°	455.9	8.9
20°-30°	688.7	13.5
30°-40°	830.0	16.2
40°-50°	871.3	17.1
50°-60°	815.2	16.0
60°-70°	673.2	13.2
70°-80°	458.7	9.0
80°-90°	156.5	3.1
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°	1304.1	25.5
0°-40°	2134.1	41.8
0°-60°	3820.6	74.8
0°-90°	5109.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5109.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1685	1685	1685	1685	1685	
5°	1682	1680	1671	1682	1682	160
15°	1607	1609	1610	1627	1631	453
25°	1466	1473	1490	1519	1527	675
35°	1275	1288	1322	1366	1380	797
45°	1049	1071	1126	1187	1209	809
55°	805	837	912	986	1015	719
65°	544	590	685	771	802	540
75°	281	346	451	536	566	300
85°	58	114	159	180	186	72
90°	0	0	0	0	0	



TEST NUMBER: P311024

CATALOG NUMBER: 24FCZ2-60HE-UNV-L82765-CP250-W2A-U-4000K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1684.9	1684.9	1684.9	1684.9	1684.9
2.5°	1686.6	1684.9	1676.4	1684.9	1683.2
5°	1681.5	1679.8	1671.3	1681.5	1681.5
7.5°	1669.6	1669.6	1661.2	1673.0	1674.7
10°	1652.7	1652.7	1647.6	1661.2	1661.2
12.5°	1632.4	1632.4	1632.4	1645.9	1647.6
15°	1606.9	1608.6	1610.3	1627.3	1630.7
17.5°	1576.4	1579.8	1584.9	1605.2	1608.6
20°	1544.2	1547.6	1556.1	1579.8	1584.9
22.5°	1503.5	1512.0	1523.9	1551.0	1556.1
25°	1466.2	1473.0	1490.0	1518.8	1527.3
27.5°	1420.5	1430.6	1452.7	1483.2	1495.1
30°	1374.7	1384.9	1412.0	1447.6	1457.8
32.5°	1325.5	1340.8	1369.6	1406.9	1418.8
35°	1274.7	1288.3	1322.2	1366.2	1379.8
37.5°	1218.8	1237.4	1274.7	1322.2	1339.1
40°	1164.5	1184.9	1227.2	1278.1	1298.4
42.5°	1110.3	1130.6	1178.1	1235.7	1256.0
45°	1049.3	1071.3	1125.5	1186.6	1208.6
47.5°	988.2	1015.3	1074.7	1139.1	1162.8
50°	925.5	956.0	1020.4	1088.2	1115.4
52.5°	869.6	898.4	966.2	1039.1	1064.5
55°	805.2	837.4	911.9	986.5	1015.3
57.5°	739.1	774.6	854.3	935.7	964.5
60°	674.6	713.6	801.8	883.1	915.3
62.5°	611.9	650.9	742.4	827.2	859.4
65°	544.1	589.9	684.8	771.3	801.8
67.5°	479.7	528.9	628.9	713.6	744.1
70°	417.0	464.5	571.2	654.3	684.8
72.5°	349.2	403.4	510.2	596.7	628.9
75°	281.4	345.8	450.9	535.6	566.2
77.5°	218.7	284.8	389.9	459.4	474.6
80°	161.0	228.8	320.4	369.5	388.2
82.5°	103.4	171.2	244.1	279.7	294.9
85°	57.6	113.6	159.3	179.7	186.5
87.5°	23.7	49.2	64.4	72.9	72.9
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)