

Scaled data based on original data using  
LM-31-95 IESNA Approved Method for Photometric Testing of Roadway Luminaires  
Using Incandescent Filament and High Intensity Discharge Lamps

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P309814

Luminaire Tested: **24FCZ2-75HE-UNV-L82765-S-CP250-W2A-U-6500K**

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-31-95  
Report Number: P309814  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1808-918-20)  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 24FCZ2-75HE-UNV-L82765-S-CP250-W2A-U-6500K  
Description: 2'X4' TROFFER LED MODULE, HIGH EFFICIENCY RND PERF. LENS, 0.250"  
POLYCARB SHEET  
Light Source: (336) 6500K 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: 5071.0 lumens  
Efficiency: N/A  
Efficacy: 77.3 lumens/watt  
Spacing Criteria (0/90/45): 1.24 / 1.3 / 1.4  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

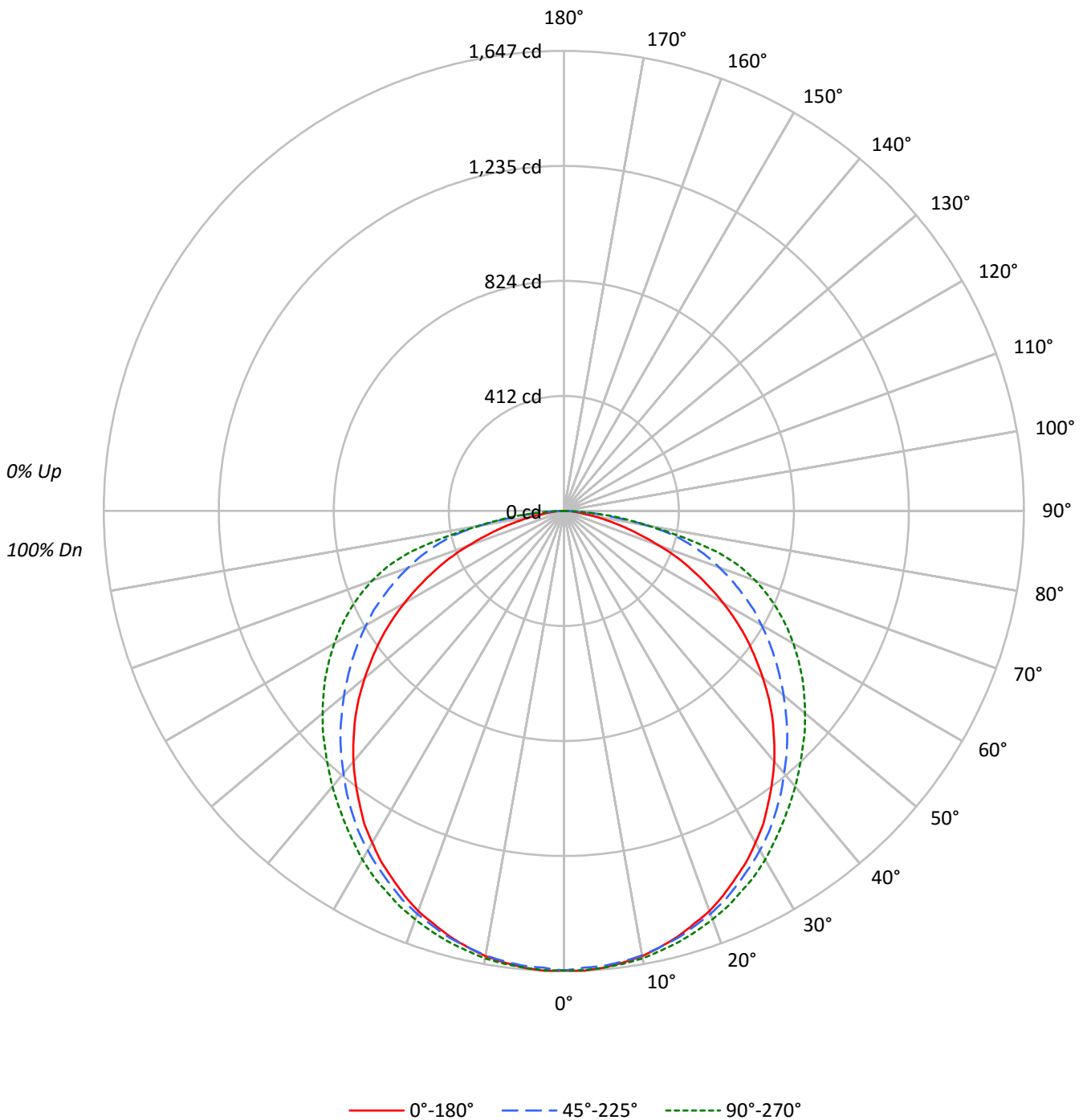
Input Watts (W): 65.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	98	94	105	101	96	93	96	93	90	92	90	87	89	86	84	82
2	98	89	82	76	95	87	80	75	83	78	73	80	75	71	77	73	70	67
3	89	78	69	62	86	76	68	62	73	66	61	70	64	59	68	63	58	56
4	81	68	59	52	79	67	59	52	65	57	51	62	56	50	60	54	50	48
5	74	61	52	45	72	60	51	45	58	50	44	56	49	44	54	48	43	41
6	69	55	46	39	67	54	45	39	52	44	38	50	43	38	49	42	38	36
7	63	50	41	34	62	49	40	34	47	39	34	46	39	34	44	38	33	31
8	59	45	36	30	57	44	36	30	43	36	30	42	35	30	41	34	30	28
9	55	41	33	27	54	41	33	27	40	32	27	39	32	27	38	31	27	25
10	52	38	30	25	50	38	30	25	37	30	25	36	29	24	35	29	24	23

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

	0°	45°	90°
0°	2214	2214	2214
5°	2216	2208	2216
10°	2210	2207	2222
15°	2197	2203	2224
20°	2183	2198	2228
25°	2156	2187	2231
30°	2131	2180	2240
35°	2096	2169	2242
40°	2058	2155	2263
45°	2012	2153	2299
50°	1946	2151	2360
55°	1878	2166	2445
60°	1771	2199	2554
65°	1636	2251	2697
70°	1428	2330	2873
75°	1159	2450	2969
80°	855	2402	2402
85°	656	1769	1999



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	155.9	3.1
10°-20°	447.6	8.8
20°-30°	681.4	13.4
30°-40°	827.4	16.3
40°-50°	874.1	17.2
50°-60°	824.8	16.3
60°-70°	685.8	13.5
70°-80°	451.2	8.9
80°-90°	123.0	2.4
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°	1284.8	25.3
0°-40°	2112.2	41.7
0°-60°	3811.1	75.2
0°-90°	5071.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5071.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1645	1645	1645	1645	1645	
5°	1641	1641	1635	1641	1641	156
15°	1577	1580	1582	1596	1596	445
25°	1452	1461	1473	1499	1503	670
35°	1276	1291	1320	1354	1365	799
45°	1057	1078	1132	1187	1208	814
55°	800	834	924	1010	1042	713
65°	514	573	707	811	847	508
75°	223	325	471	558	571	240
85°	42	93	115	127	130	52
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1645.3	1645.3	1645.3	1645.3	1645.3
2.5°	1647.4	1645.3	1636.8	1645.3	1645.3
5°	1641.0	1641.0	1634.7	1641.0	1641.0
7.5°	1630.4	1630.4	1626.2	1634.7	1634.7
10°	1617.7	1617.7	1615.6	1626.2	1626.2
12.5°	1598.6	1600.7	1598.6	1611.3	1611.3
15°	1577.4	1579.5	1581.6	1596.5	1596.5
17.5°	1549.8	1554.0	1558.2	1575.2	1577.4
20°	1524.3	1526.4	1534.9	1554.0	1556.1
22.5°	1490.3	1496.7	1507.3	1526.4	1532.8
25°	1452.1	1460.6	1473.3	1498.8	1503.1
27.5°	1416.0	1422.4	1439.4	1467.0	1475.5
30°	1371.4	1382.0	1403.3	1430.9	1441.5
32.5°	1329.0	1339.6	1365.1	1394.8	1403.3
35°	1275.9	1290.8	1320.5	1354.4	1365.1
37.5°	1224.9	1239.8	1275.9	1314.1	1326.8
40°	1171.9	1188.9	1227.1	1271.6	1288.6
42.5°	1114.6	1137.9	1180.4	1229.2	1248.3
45°	1057.2	1078.5	1131.5	1186.7	1208.0
47.5°	995.7	1021.1	1078.5	1144.3	1169.7
50°	929.9	961.7	1027.5	1099.7	1127.3
52.5°	864.0	900.1	974.4	1055.1	1084.8
55°	800.4	834.3	923.5	1010.5	1042.4
57.5°	730.3	772.8	870.4	963.8	995.7
60°	658.1	704.8	817.3	915.0	949.0
62.5°	585.9	639.0	766.4	864.0	900.1
65°	513.8	573.2	706.9	811.0	847.1
67.5°	443.7	509.5	651.7	755.8	791.9
70°	363.0	445.8	592.3	694.2	730.3
72.5°	288.7	384.3	535.0	630.5	662.4
75°	222.9	324.8	471.3	558.3	571.1
77.5°	163.5	265.4	405.5	435.2	437.3
80°	110.4	212.3	310.0	305.7	310.0
82.5°	72.2	159.2	195.3	218.7	220.8
85°	42.5	93.4	114.6	127.4	129.5
87.5°	21.2	31.8	40.3	42.5	46.7
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)