

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: 168P194

Luminaire Tested: **FUS16LP-N-332-80/86**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: 168P194
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FUS16LP-N-332-80/86
Description: FAIL-SAFE FUS SERIES LUMINAIRE
Light Source: THREE - FO32T8/35K - 2800 LUMENS EA. - 32 WATTS EA.
Ballast/Driver: ADVANCE REL-3P32-SC

Summary

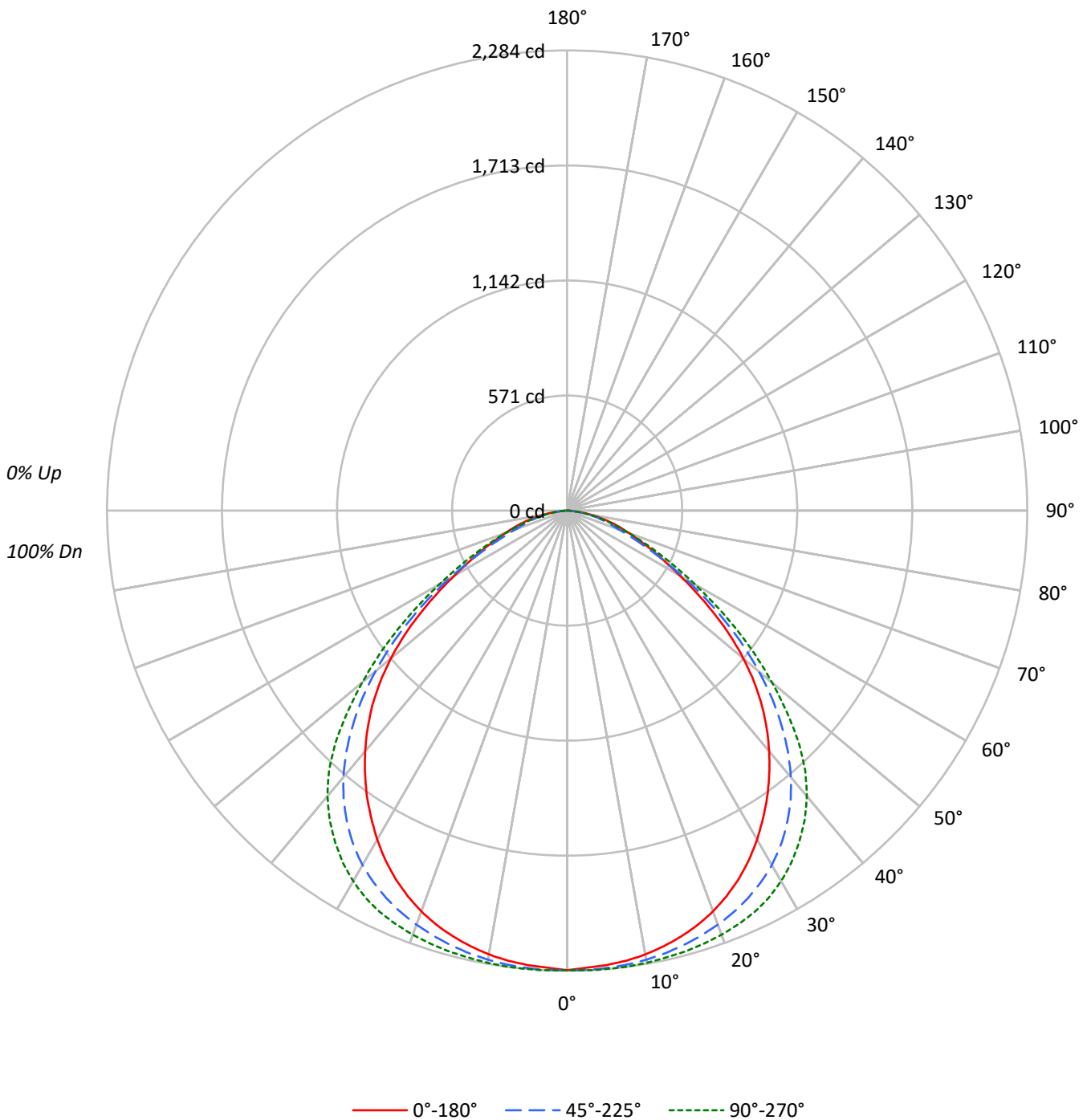
Lumens per Lamp: 2800 (3 lamps)
Luminaire Lumens: 5720.1 lumens
Efficiency: 68.1%
Efficacy: 69.8 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.37 / 1.38
Luminous Opening: Rectangular (W 1.03' x L: 3.92' x H: 0')
CIE Type: Direct

Input Watts (W): 82
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	81	81	81	81	79	79	79	79	76	76	76		72	72	72		69	69	69	68
1	75	72	70	67	73	71	68	66	68	66	64		65	64	62		63	62	60	59
2	69	64	60	56	67	63	59	56	60	57	54		58	55	53		56	54	52	51
3	63	57	52	48	62	56	51	47	54	50	46		52	48	46		50	47	45	43
4	58	51	45	41	57	50	45	41	48	44	40		47	43	40		45	42	39	38
5	54	46	40	36	52	45	39	35	43	39	35		42	38	35		41	37	34	33
6	50	41	35	31	49	41	35	31	39	35	31		38	34	31		37	33	30	29
7	46	37	32	28	45	37	32	28	36	31	28		35	31	27		34	30	27	26
8	43	34	29	25	42	34	29	25	33	28	25		32	28	25		31	27	24	23
9	40	32	26	22	39	31	26	22	30	26	22		30	25	22		29	25	22	21
10	38	29	24	20	37	29	24	20	28	23	20		27	23	20		27	23	20	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	6081	6081	6081
5°	6059	6099	6112
10°	6056	6129	6169
15°	6039	6163	6251
20°	6006	6205	6355
25°	5930	6245	6468
30°	5803	6255	6538
35°	5637	6187	6535
40°	5429	6014	6442
45°	5154	5670	6123
50°	4736	5155	5504
55°	4137	4453	4764
60°	3450	3610	3903
65°	2914	2750	3148
70°	2541	2112	2518
75°	2276	1854	2070
80°	1827	1581	1643
85°	1009	948	918



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	22.5°	45°	67.5°	90°	Flux
0°-10°	216.8	3.8	2.6	0°	2281	2281	2281	2281	2281	
10°-20°	630.2	11.0	7.5	5°	2264	2270	2279	2284	2284	215
20°-30°	974.6	17.0	11.6	15°	2188	2204	2233	2257	2265	617
30°-40°	1176.6	20.6	14.0	25°	2016	2054	2123	2180	2199	927
40°-50°	1147.9	20.1	13.7	35°	1732	1789	1901	1981	2008	1082
50°-60°	850.2	14.9	10.1	45°	1367	1404	1504	1582	1624	1049
60°-70°	467.8	8.2	5.6	55°	890	896	958	986	1025	796
70°-80°	212.4	3.7	2.5	65°	462	468	436	464	499	466
80°-90°	43.6	0.8	0.5	75°	221	208	180	196	201	234
90°-100°	0.0	0.0	0.0	85°	33	33	31	30	30	46
100°-110°	0.0	0.0	0.0	90°	0	0	0	0	0	1
110°-120°	0.0	0.0	0.0	95°	0	0	0	0	0	0
120°-130°	0.0	0.0	0.0	105°	0	0	0	0	0	0
130°-140°	0.0	0.0	0.0	115°	0	0	0	0	0	0
140°-150°	0.0	0.0	0.0	125°	0	0	0	0	0	0
150°-160°	0.0	0.0	0.0	135°	0	0	0	0	0	0
160°-170°	0.0	0.0	0.0	145°	0	0	0	0	0	0
170°-180°	0.0	0.0	0.0	155°	0	0	0	0	0	0
0°-30°	1821.7	31.8	21.7	165°	0	0	0	0	0	0
0°-40°	2998.2	52.4	35.7	175°	0	0	0	0	0	0
0°-60°	4996.3	87.3	59.5	180°	0	0	0	0	0	0
0°-90°	5720.1	100.0	68.1							
90°-120°	0.0	0.0	0.0							
90°-150°	0.0	0.0	0.0							
90°-180°	0.0	0.0	0.0							
0°-180°	5720.1	100.0	68.1							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2281	2281	2281	2281	2281
2.5°	2271	2276	2282	2285	2284
5°	2264	2270	2279	2284	2284
7.5°	2253	2260	2273	2281	2283
10°	2237	2247	2264	2276	2279
12.5°	2215	2228	2250	2267	2272
15°	2188	2204	2233	2257	2265
17.5°	2156	2176	2212	2243	2254
20°	2117	2142	2187	2226	2240
22.5°	2070	2101	2158	2205	2222
25°	2016	2054	2123	2180	2199
27.5°	1955	1998	2081	2148	2167
30°	1885	1935	2032	2104	2124
32.5°	1810	1864	1972	2048	2072
35°	1732	1789	1901	1981	2008
37.5°	1648	1708	1821	1903	1936
40°	1560	1618	1728	1814	1851
42.5°	1466	1516	1622	1707	1749
45°	1367	1404	1504	1582	1624
47.5°	1259	1286	1379	1447	1478
50°	1142	1161	1243	1300	1327
52.5°	1020	1028	1102	1144	1177
55°	890	896	958	986	1025
57.5°	763	776	817	836	873
60°	647	664	677	691	732
62.5°	547	560	547	567	606
65°	462	468	436	464	499
67.5°	389	389	344	377	404
70°	326	322	271	306	323
72.5°	273	263	218	247	256
75°	221	208	180	196	201
77.5°	170	158	143	148	153
80°	119	111	103	102	107
82.5°	72	69	64	62	63
85°	33	33	31	30	30
87.5°	8	10	10	10	10
90°	0	0	0	0	0
92.5°	0	0	0	0	0
95°	0	0	0	0	0
97.5°	0	0	0	0	0
100°	0	0	0	0	0
102.5°	0	0	0	0	0
105°	0	0	0	0	0
107.5°	0	0	0	0	0
110°	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0	0	0	0	0
115°	0	0	0	0	0
117.5°	0	0	0	0	0
120°	0	0	0	0	0
122.5°	0	0	0	0	0
125°	0	0	0	0	0
127.5°	0	0	0	0	0
130°	0	0	0	0	0
132.5°	0	0	0	0	0
135°	0	0	0	0	0
137.5°	0	0	0	0	0
140°	0	0	0	0	0
142.5°	0	0	0	0	0
145°	0	0	0	0	0
147.5°	0	0	0	0	0
150°	0	0	0	0	0
152.5°	0	0	0	0	0
155°	0	0	0	0	0
157.5°	0	0	0	0	0
160°	0	0	0	0	0
162.5°	0	0	0	0	0
165°	0	0	0	0	0
167.5°	0	0	0	0	0
170°	0	0	0	0	0
172.5°	0	0	0	0	0
175°	0	0	0	0	0
177.5°	0	0	0	0	0
180°	0	0	0	0	0

(END OF REPORT)