

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: P#

Luminaire Tested: **FLDSQ4C35D010 FEU4C359035 F4LC-CSSQ-MMS**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P#
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C35D010 FEU4C359035 F4LC-CSSQ-MMS
 Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS
 AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

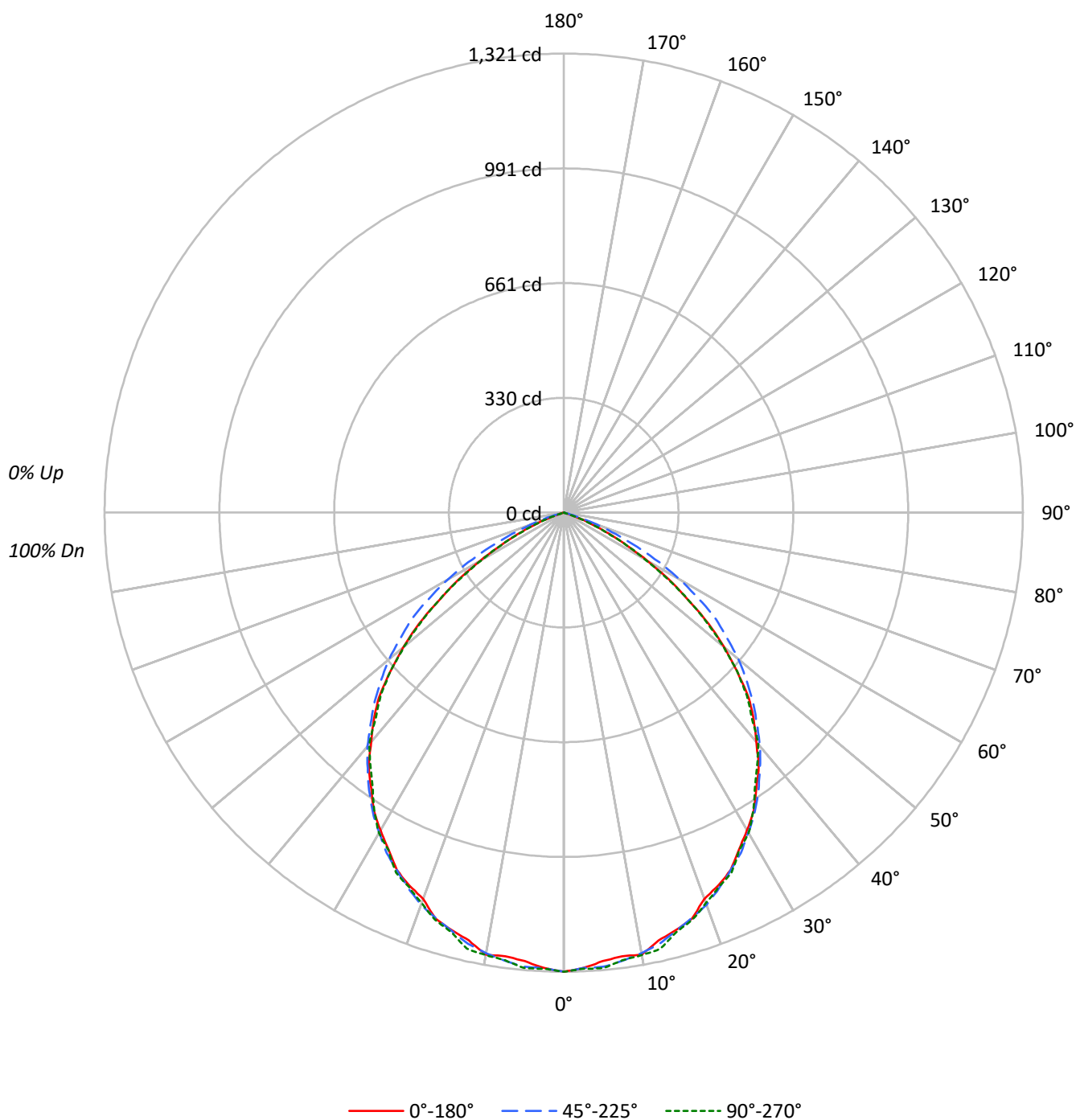
Lumens per Lamp: N/A
 Luminaire Lumens: 2822.0 lumens
 Efficiency: N/A
 Efficacy: 69.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 40.4
 Input Voltage (V):
 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

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	GONIO 1 IN0055	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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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
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	111	108	104	101	109	105	102	100	101	99	96		97	95	94		89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	127471	127471	127471
5°	125411	127038	127406
10°	126499	126126	126675
15°	124276	124466	124836
20°	121390	123310	122745
25°	120868	120868	121667
30°	117499	118335	118546
35°	113833	114941	112950
40°	108487	110616	109671
45°	102669	104989	101646
50°	90426	98307	89856
55°	73228	89966	73547
60°	53590	74605	52509
65°	32557	53128	31713
70°	12695	28606	12187
75°	1417	7717	1417
80°	1056	1056	1056
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	124.7	4.4
10°-20°	352.9	12.5
20°-30°	523.6	18.6
30°-40°	606.7	21.5
40°-50°	581.7	20.6
50°-60°	427.7	15.2
60°-70°	184.7	6.5
70°-80°	19.9	0.7
80°-90°	0.3	0.0
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°	1001.1	35.5
0°-40°	1607.8	57.0
0°-60°	2617.1	92.7
0°-90°	2822.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2822.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1321	1321	1321	1321	1321	
5°	1295	1308	1312	1314	1315	124
15°	1244	1252	1246	1248	1250	351
25°	1135	1133	1135	1137	1143	520
35°	966	972	976	974	959	604
45°	752	754	769	758	745	572
55°	435	480	535	478	437	392
65°	143	178	233	176	139	147
75°	4	6	21	4	4	12
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1
2.5°	1311.6	1326.7	1328.6	1319.2	1315.4	1309.8	1322.9	1313.6	1317.3	1313.6	1311.6
5°	1294.8	1311.6	1313.6	1313.6	1309.8	1307.9	1313.6	1311.6	1309.8	1306.1	1311.6
7.5°	1287.3	1296.6	1306.1	1294.8	1300.4	1298.6	1311.6	1306.1	1304.1	1304.1	1300.4
10°	1291.1	1289.1	1296.6	1285.4	1289.1	1285.4	1296.6	1296.6	1292.9	1289.1	1287.3
12.5°	1261.0	1276.0	1276.0	1274.1	1270.4	1264.7	1276.0	1283.5	1272.2	1272.2	1270.4
15°	1244.1	1247.9	1249.7	1249.7	1247.9	1251.6	1257.2	1249.7	1251.6	1242.2	1246.0
17.5°	1225.4	1217.9	1223.5	1219.7	1221.6	1225.4	1232.9	1232.9	1221.6	1219.7	1223.5
20°	1182.2	1204.7	1206.6	1195.4	1197.2	1197.2	1210.4	1199.1	1206.6	1197.2	1200.9
22.5°	1161.5	1176.5	1178.4	1163.4	1172.8	1161.5	1174.7	1157.8	1176.5	1163.4	1169.0
25°	1135.3	1133.4	1139.0	1131.5	1133.4	1133.4	1142.8	1135.3	1140.9	1133.4	1135.3
27.5°	1092.1	1107.2	1105.2	1097.7	1101.5	1099.6	1118.4	1097.7	1109.0	1099.6	1103.4
30°	1054.6	1067.7	1064.0	1056.5	1056.5	1050.8	1071.5	1065.8	1064.0	1064.0	1062.1
32.5°	1017.0	1019.0	1015.2	1017.0	1019.0	1011.5	1028.3	1020.8	1019.0	1020.8	1022.7
35°	966.4	966.4	970.1	964.5	972.0	972.0	987.0	977.6	975.8	970.1	975.8
37.5°	921.3	915.7	917.6	917.6	921.3	925.1	932.6	928.8	928.8	923.3	927.0
40°	861.3	857.6	863.2	863.2	868.8	868.8	876.3	872.6	878.2	878.2	878.2
42.5°	808.8	808.8	805.0	810.6	812.5	810.6	823.8	821.9	823.8	820.0	821.9
45°	752.4	752.4	748.7	746.9	756.2	754.4	769.4	763.7	771.2	767.5	769.4
47.5°	675.5	684.9	679.3	684.9	696.2	698.1	707.4	703.7	711.2	705.6	713.1
50°	602.4	602.4	608.0	615.5	626.7	628.6	639.9	647.4	651.2	653.0	654.9
52.5°	525.4	523.5	529.2	538.5	547.9	555.5	566.7	578.0	585.5	596.7	591.1
55°	435.3	439.1	444.7	456.0	471.0	480.3	489.8	504.8	517.9	523.5	534.8
57.5°	358.4	354.6	358.4	373.4	390.3	397.8	411.0	426.0	444.7	456.0	459.8
60°	277.7	279.6	283.4	296.5	309.6	320.9	326.5	350.9	367.8	379.1	386.6
62.5°	204.6	208.3	212.1	223.3	236.4	245.8	255.2	275.9	290.9	302.1	309.6
65°	142.6	144.5	150.1	155.7	168.9	178.2	185.7	202.7	217.7	227.1	232.7
67.5°	88.2	90.0	93.8	101.4	110.7	118.2	125.7	137.0	150.1	159.5	161.4
70°	45.0	46.9	48.8	54.4	61.9	65.7	71.3	80.7	90.0	97.5	101.4
72.5°	15.0	15.0	16.9	20.7	24.4	28.2	30.0	39.4	46.9	50.7	52.5
75°	3.8	3.8	3.8	3.8	3.8	5.7	5.7	11.3	15.0	18.8	20.7
77.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.8	3.8
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1	1321.1
2.5°	1321.1	1317.3	1315.4	1317.3	1317.3	1315.4	1321.1	1328.6	1337.9	1313.6
5°	1319.2	1315.4	1319.2	1307.9	1313.6	1309.8	1317.3	1315.4	1322.9	1315.4
7.5°	1313.6	1306.1	1307.9	1302.3	1309.8	1300.4	1306.1	1317.3	1309.8	1298.6
10°	1294.8	1291.1	1304.1	1285.4	1281.6	1289.1	1304.1	1292.9	1289.1	1292.9
12.5°	1276.0	1276.0	1281.6	1266.6	1268.5	1272.2	1279.7	1272.2	1276.0	1285.4
15°	1255.4	1251.6	1261.0	1249.7	1247.9	1244.1	1251.6	1251.6	1255.4	1249.7
17.5°	1231.0	1225.4	1225.4	1221.6	1219.7	1229.1	1232.9	1234.7	1236.6	1229.1
20°	1200.9	1199.1	1204.7	1199.1	1200.9	1202.9	1202.9	1199.1	1215.9	1195.4
22.5°	1169.0	1174.7	1167.2	1163.4	1167.2	1170.9	1170.9	1172.8	1169.0	1165.3
25°	1137.2	1140.9	1142.8	1131.5	1137.2	1131.5	1144.7	1146.5	1139.0	1142.8
27.5°	1109.0	1103.4	1101.5	1094.0	1097.7	1095.9	1097.7	1097.7	1109.0	1094.0
30°	1065.8	1060.2	1062.1	1056.5	1058.3	1056.5	1058.3	1058.3	1065.8	1064.0
32.5°	1024.5	1019.0	1020.8	1015.2	1015.2	1017.0	1013.3	1013.3	1019.0	1015.2
35°	985.1	972.0	973.9	972.0	973.9	966.4	966.4	964.5	968.3	958.9
37.5°	928.8	923.3	921.3	919.5	921.3	917.6	921.3	915.7	921.3	913.8
40°	878.2	874.4	876.3	865.1	865.1	866.9	863.2	861.3	863.2	870.7
42.5°	827.6	820.0	816.3	812.5	814.4	808.8	806.9	803.1	806.9	799.4
45°	767.5	767.5	765.6	756.2	758.1	758.1	750.6	743.1	744.9	744.9
47.5°	713.1	709.3	707.4	698.1	696.2	694.3	686.8	681.2	681.2	675.5
50°	653.0	649.2	643.7	634.2	630.5	619.2	613.6	606.1	598.6	598.6
52.5°	596.7	583.6	576.0	561.0	555.5	549.8	534.8	529.2	523.5	517.9
55°	529.2	517.9	502.9	486.0	478.5	469.1	454.1	442.8	435.3	437.2
57.5°	463.5	444.7	429.7	407.2	397.8	392.1	377.1	362.1	354.6	354.6
60°	382.8	367.8	349.0	328.4	320.9	311.5	292.7	283.4	277.7	272.1
62.5°	305.9	294.6	277.7	251.4	245.8	236.4	223.3	212.1	206.4	206.4
65°	228.9	217.7	202.7	183.9	176.4	168.9	157.6	146.4	140.7	138.9
67.5°	161.4	148.2	135.1	120.1	114.5	110.7	99.5	92.0	88.2	86.3
70°	97.5	90.0	80.7	69.4	63.8	60.0	52.5	46.9	45.0	43.2
72.5°	50.7	45.0	37.5	30.0	26.3	22.5	18.8	15.0	13.2	13.2
75°	18.8	15.0	9.4	5.7	3.8	3.8	3.8	3.8	3.8	3.8
77.5°	3.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)