

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: P29170

Luminaire Tested: **H12-LD4-20W-40-CLR-EDC1**

Test Date: 12/20/16



Test Information

Test Method: LM-79-08
Report Number: P29170
Test Lab: INNOVATION CENTER-P2
Test Date: 12/20/16
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: H12-LD4-20W-40-CLR-EDC1
Description: H12 LED FIXTURE WITH CLEAR LENS
Light Source: (56) NICHIA 4000K LEDS
1FS402256M8404
Ballast/Driver: (1) OSRAM ELECTRONIC DRIVER (450mA)
OT40W-UNV-1250C

Summary

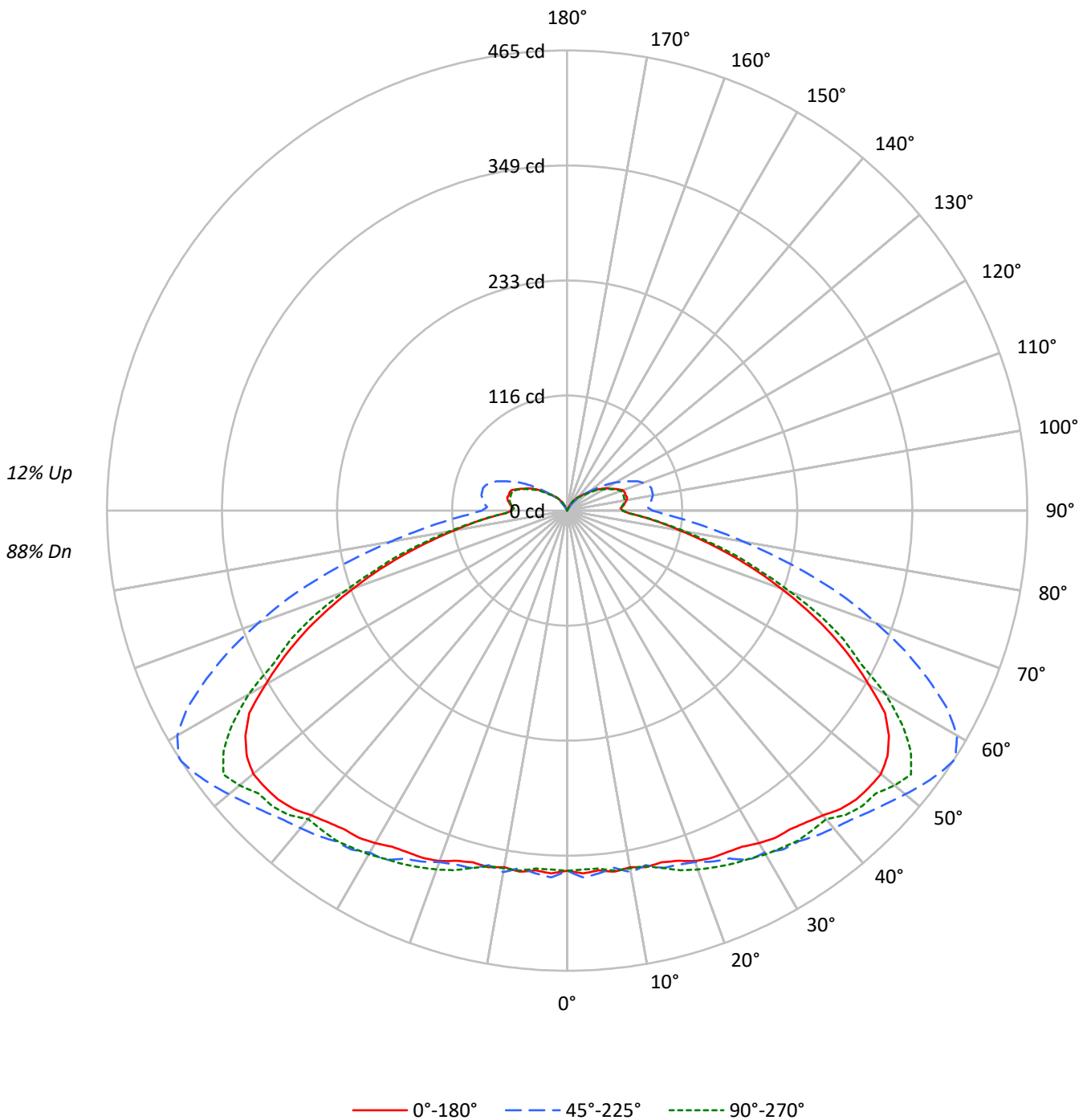
Lumens per Lamp: N/A
Luminaire Lumens: 2282.8 lumens
Efficiency: N/A
Efficacy: 106.2 lumens/watt
Spacing Criteria (0/90/45): 1.67 / 1.69 / 1.98
Luminous Opening: Rectangular w/ Sides (W: 0.83' x L: 0.83' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 21.5
Input Voltage (V): 120.0
Input Current (A_{in}): 0.180
Voltage Rise (V): NR
Power Factor: 0.9974
Total Harmonic Distortion (THDi): 6.66%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): 25.1
Test Distance: 25 FT

TEST NUMBER: P29170

CATALOG NUMBER: H12-LD4-20W-40-CLR-EDC1

Luminous Intensity Polar Plot





TEST NUMBER: P29170

CATALOG NUMBER: H12-LD4-20W-40-CLR-EDC1

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	50	30	10	0	
RCR																						
0	116	116	116	116	112	112	112	112	104	104	104	97	97	97	91	91	91	88				
1	103	97	92	87	99	94	89	85	87	83	80	81	78	75	76	73	71	68				
2	92	82	74	67	88	79	72	66	74	68	62	68	63	59	64	60	56	53				
3	83	71	61	54	79	68	59	52	63	56	50	59	53	47	54	49	45	42				
4	75	61	51	44	71	59	50	43	55	47	41	51	44	39	47	42	37	34				
5	68	54	44	36	65	52	43	36	48	40	34	45	38	33	42	36	31	29				
6	62	48	38	31	59	46	37	30	43	35	29	40	33	28	37	31	27	24				
7	57	43	33	27	55	41	32	26	39	31	25	36	29	24	34	28	23	21				
8	53	39	29	23	51	37	29	23	35	27	22	33	26	21	31	25	20	18				
9	49	35	26	20	47	34	26	20	32	24	19	30	23	18	28	22	18	16				
10	46	32	24	18	44	31	23	18	29	22	17	27	21	16	26	20	16	14				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5642	5642	5642
5°	5441	5392	5411
10°	5294	5192	5308
15°	5208	5046	5292
20°	5261	4959	5387
25°	5284	4990	5464
30°	5389	5071	5569
35°	5508	5164	5704
40°	5730	5321	5801
45°	6035	5534	6167
50°	6256	5836	6528
55°	6259	6198	6685
60°	5848	6340	6180
65°	5203	5859	5451
70°	4391	5113	4582
75°	3531	4213	3699
80°	2699	3225	2793
85°	2066	2428	2092



TEST NUMBER: P29170

CATALOG NUMBER: H12-LD4-20W-40-CLR-EDC1

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.1	1.5
10°-20°	106.0	4.6
20°-30°	180.1	7.9
30°-40°	254.2	11.1
40°-50°	329.5	14.4
50°-60°	391.4	17.1
60°-70°	353.5	15.5
70°-80°	237.2	10.4
80°-90°	119.8	5.2
90°-100°	78.5	3.4
100°-110°	78.3	3.4
110°-120°	59.7	2.6
120°-130°	34.8	1.5
130°-140°	16.9	0.7
140°-150°	7.0	0.3
150°-160°	0.9	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	321.2	14.1
0°-40°	575.4	25.2
0°-60°	1296.3	56.8
0°-90°	2006.8	87.9
90°-120°	216.5	9.5
90°-150°	275.1	12.0
90°-180°	276.0	12.1
0°-180°	2282.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	364	364	364	364	364	
5°	365	367	368	368	363	35
15°	368	370	374	376	374	105
25°	381	385	388	392	394	177
35°	393	400	408	407	407	248
45°	413	426	431	428	422	318
55°	397	436	461	458	424	351
65°	294	360	402	367	308	290
75°	169	228	256	232	177	180
85°	78	111	124	112	79	72
90°	56	74	86	74	56	31
95°	57	73	84	72	56	47
105°	61	76	88	75	59	65
115°	52	60	70	59	51	52
125°	37	38	43	37	36	33
135°	23	20	22	20	22	18
145°	13	12	8	11	13	9
155°	4	0	0	0	3	2
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P29170

CATALOG NUMBER: H12-LD4-20W-40-CLR-EDC1

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	51°	55°	65°	75°	85°
0°	364	364	364	364	364	364	364	364	364	364	364
2.5°	367	367	367	367	370	371	373	372	370	367	363
5°	365	365	366	367	370	368	366	365	368	370	365
7.5°	368	369	370	370	367	364	367	370	370	373	370
10°	366	367	366	363	365	371	372	367	370	368	371
12.5°	369	368	365	364	369	367	371	373	370	372	375
15°	368	368	365	372	371	374	376	371	376	377	380
17.5°	371	372	372	375	373	375	376	377	382	382	386
20°	377	378	377	377	381	378	384	381	383	386	390
22.5°	380	381	378	380	381	384	389	387	386	389	392
25°	381	381	382	386	386	388	395	392	392	393	395
27.5°	383	383	386	388	393	398	400	394	395	396	398
30°	388	389	390	392	397	399	405	401	397	402	401
32.5°	392	393	393	397	403	406	410	402	404	404	405
35°	393	393	396	402	408	408	413	409	408	403	407
37.5°	397	397	401	407	415	414	419	413	406	407	406
40°	402	403	407	414	421	419	424	415	412	411	407
42.5°	409	409	413	420	425	424	429	420	419	413	416
45°	413	413	420	428	430	431	437	428	429	423	421
47.5°	414	414	423	435	438	438	447	441	439	431	423
50°	414	415	425	440	445	446	457	451	448	438	433
52.5°	408	409	424	442	451	454	466	461	459	451	439
55°	397	399	418	442	454	461	476	470	462	446	428
57°	384	386	408	437	453	465	478	468	455	432	409
57.5°	381	384	406	436	453	465	477	467	453	428	406
60°	352	357	384	418	441	455	465	452	435	405	376
62.5°	324	329	361	396	420	433	439	426	407	374	342
65°	294	300	334	368	390	402	409	396	375	343	313
67.5°	262	268	305	339	358	369	375	362	345	319	284
70°	230	236	275	305	323	332	340	328	313	283	246
72.5°	199	206	243	273	289	296	302	290	275	246	213
75°	169	175	209	235	250	256	264	250	238	214	184
77.5°	141	148	177	201	213	217	222	213	204	182	154
80°	116	122	150	169	178	181	185	178	170	152	125
82.5°	96	101	125	140	148	150	154	147	141	126	103
85°	78	83	101	114	121	124	127	121	115	102	84
87.5°	62	66	79	91	98	101	104	99	90	79	67
90°	56	58	67	76	83	86	88	84	76	66	57
92.5°	54	55	64	72	79	81	83	79	72	63	55
95°	57	58	66	75	81	84	85	81	75	65	57
97.5°	59	60	68	77	83	86	87	83	77	67	59
100°	61	62	70	79	85	88	88	85	78	68	60
102.5°	62	62	71	79	85	88	88	85	78	69	60
105°	61	62	70	78	85	88	87	84	77	68	60
107.5°	61	61	68	77	83	86	85	83	76	66	59



TEST NUMBER: P29170

CATALOG NUMBER: H12-LD4-20W-40-CLR-EDC1

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	51°	55°	65°	75°	85°
110°	60	60	65	73	79	82	81	79	72	64	58
112.5°	56	57	60	68	74	77	76	74	67	59	55
115°	52	53	55	62	68	70	70	67	61	54	51
117.5°	48	49	50	56	61	63	64	61	55	48	47
120°	45	45	45	50	55	57	57	54	49	43	43
122.5°	41	41	41	44	48	50	50	48	43	39	39
125°	37	37	36	38	42	43	43	41	38	35	36
127.5°	33	33	32	33	35	36	37	35	32	30	31
130°	29	29	28	28	30	31	31	30	27	27	28
132.5°	25	25	24	23	25	26	27	25	22	23	24
135°	23	23	22	20	22	22	23	21	19	21	22
137.5°	20	20	19	17	18	19	19	18	17	19	20
140°	18	18	17	15	15	15	15	14	15	17	17
142.5°	16	16	15	13	11	12	12	11	13	15	16
145°	13	13	13	11	8	8	8	8	11	12	13
147.5°	11	11	10	8	6	4	5	6	9	10	11
150°	9	9	8	6	3	0	2	3	6	8	9
152.5°	7	6	6	4	0	0	0	0	3	5	6
155°	4	3	2	0	0	0	0	0	0	2	3
157.5°	0	0	0	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0	0	0	0
162.5°	0	0	0	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0	0	0	0
167.5°	0	0	0	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0	0	0	0
172.5°	0	0	0	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0	0	0	0
177.5°	0	0	0	0	0	0	0	0	0	0	0
180°	0	0	0	0	0	0	0	0	0	0	0



TEST NUMBER: P29170

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CANDELA DISTRIBUTION (continued):

	90°
0°	364
2.5°	363
5°	363
7.5°	367
10°	367
12.5°	368
15°	374
17.5°	381
20°	386
22.5°	390
25°	394
27.5°	397
30°	401
32.5°	404
35°	407
37.5°	407
40°	407
42.5°	417
45°	422
47.5°	423
50°	432
52.5°	438
55°	424
57°	406
57.5°	401
60°	372
62.5°	334
65°	308
67.5°	276
70°	240
72.5°	206
75°	177
77.5°	147
80°	120
82.5°	97
85°	79
87.5°	62
90°	56
92.5°	54
95°	56
97.5°	58
100°	59
102.5°	59
105°	59
107.5°	59



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CANDELA DISTRIBUTION (continued):

	90°
110°	58
112.5°	55
115°	51
117.5°	47
120°	43
122.5°	39
125°	36
127.5°	31
130°	27
132.5°	24
135°	22
137.5°	19
140°	17
142.5°	16
145°	13
147.5°	12
150°	9
152.5°	6
155°	3
157.5°	0
160°	0
162.5°	0
165°	0
167.5°	0
170°	0
172.5°	0
175°	0
177.5°	0
180°	0

(END OF REPORT)