

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: HALO COMMERCIAL

Report Number: P21973

Luminaire Tested: **PA4-4AC_11PAR30LED**

Issue Date: 03/03/2020



Test Information

Test Method: LM-79-08
Report Number: P21973
Test Lab: INNOVATION CENTER P2
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PA4-4AC_11PAR30LED
Description: HALO LED RECESSED DOWNLIGHT FIXTURE WITH ADJUSTABLE LAMP
HOLDER AND 6AC SPECULAR CLEAR TRIM
Light Source: (1) 11W PAR 30 LED
11EPAR30S-E
Ballast/Driver: (1) CHROMA POWER SUPPLY
CHROMA IN0061

Summary

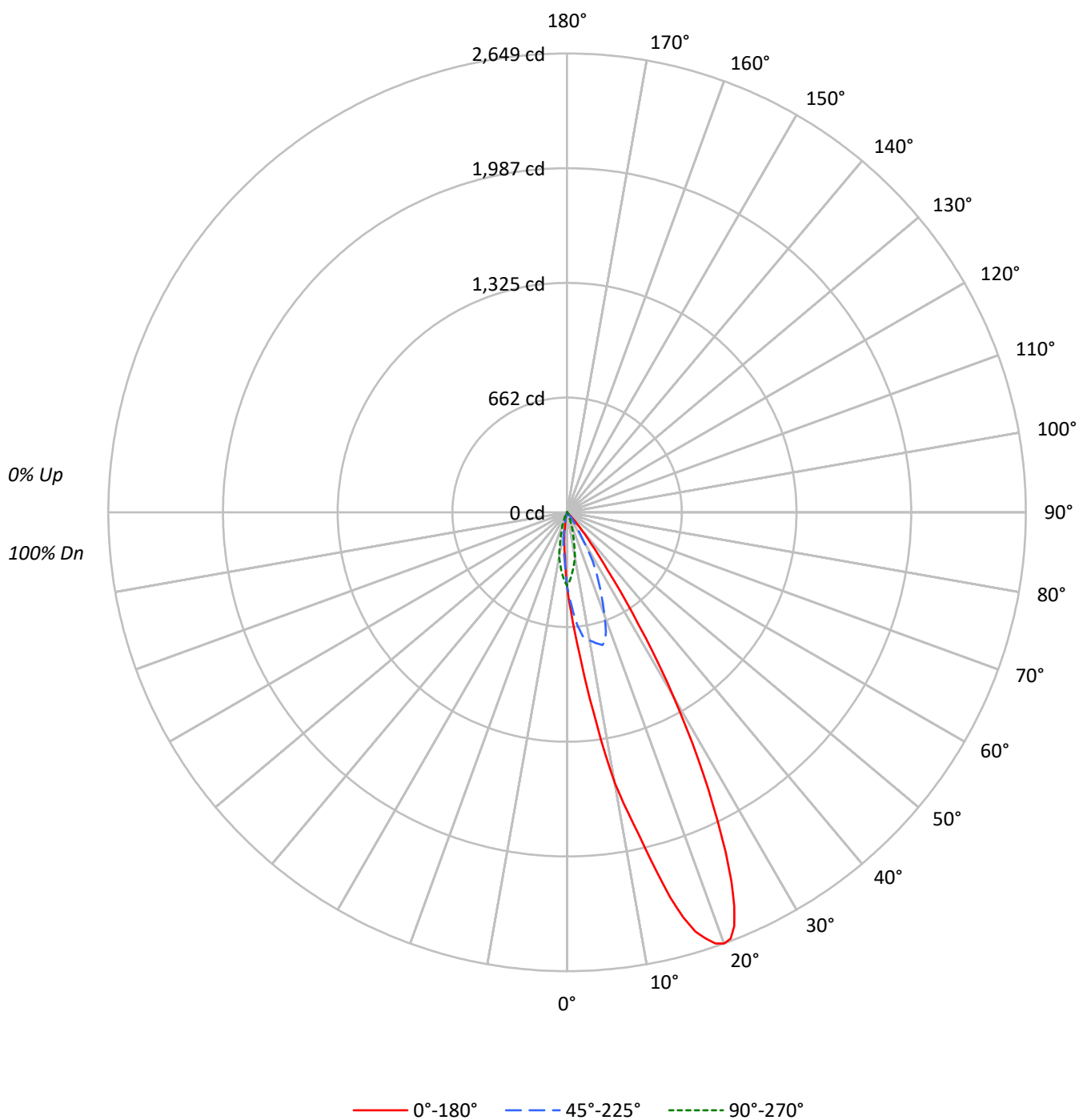
Lumens per Lamp: N/A
Luminaire Lumens: 410.0 lumens
Efficiency: N/A
Efficacy: 40.6 lumens/watt
Spacing Criteria (0/90/45): 1.29 / 0.4 / 0.75
Luminous Opening: Vertical Cylinder (Dia: 0.36' x H: 0.1')
CIE Type: Direct

Input Watts (W): 10.1
Input Voltage (V): NR
Input Current (Ain): 0.1004
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: 3 HR
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	114	111	109	107	112	109	107	105	105	104	102	102	100	99	98	97	96	95		
2	109	105	101	98	107	103	100	97	100	97	95	97	95	93	94	92	91	89		
3	104	98	94	90	102	97	93	90	94	91	88	92	89	87	90	87	85	84		
4	100	93	88	84	98	92	87	83	90	86	82	88	84	81	86	83	81	79		
5	95	88	82	78	94	87	82	78	85	81	77	83	80	77	82	79	76	75		
6	91	83	77	74	90	82	77	73	81	76	73	79	75	72	78	75	72	71		
7	87	78	73	69	86	78	73	69	77	72	69	75	71	68	74	71	68	67		
8	83	74	69	65	82	74	69	65	73	68	65	72	68	65	71	67	64	63		
9	80	71	65	62	79	70	65	62	69	65	61	68	64	61	68	64	61	60		
10	76	67	62	58	75	67	62	58	66	61	58	65	61	58	65	61	58	57		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	43717	43717	43717
5°	81651	34950	18680
10°	156517	25840	5424
15°	224698	13373	1367
20°	257880	6717	389
25°	212103	2739	98
30°	121769	594	99
35°	41163	101	101
40°	12283	0	104
45°	540	0	0
50°	0	0	0
55°	0	120	0
60°	0	0	0
65°	0	139	0
70°	0	0	0
75°	0	0	0
80°	0	0	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.9	10.5
10°-20°	147.8	36.1
20°-30°	166.0	40.5
30°-40°	50.0	12.2
40°-50°	2.7	0.7
50°-60°	0.2	0.1
60°-70°	0.3	0.1
70°-80°	0.0	0.0
80°-90°	0.0	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°	356.7	87.0
0°-40°	406.7	99.2
0°-60°	409.6	99.9
0°-90°	410.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	410.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	424	424	424	424	424	
5°	813	647	348	215	186	102
15°	2302	793	137	31	14	649
25°	2168	420	28	1	1	947
35°	407	63	1	1	1	312
45°	5	0	0	0	0	18
55°	0	0	1	1	0	0
65°	0	0	1	0	0	0
75°	0	0	0	0	0	0
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	22.5°	45°	67.5°
0°	424	424	424	424	424	424	424	424	424	424	424
2.5°	592	589	587	586	585	582	579	574	567	529	473
5°	813	828	827	825	823	816	803	788	760	647	483
7.5°	1159	1162	1206	1230	1231	1204	1139	1072	989	729	467
10°	1587	1570	1565	1535	1486	1435	1390	1350	1275	750	429
12.5°	1899	1921	1907	1878	1837	1781	1705	1625	1456	774	395
15°	2302	2313	2270	2209	2138	2057	1963	1865	1645	793	330
16°	2432	2415	2387	2336	2259	2158	2044	1930	1694	779	304
17°	2530	2509	2471	2412	2336	2246	2134	2004	1730	759	281
18°	2587	2582	2540	2476	2392	2293	2174	2046	1760	726	254
19°	2632	2620	2583	2522	2432	2316	2184	2045	1752	681	221
20°	2649	2635	2591	2519	2424	2308	2174	2025	1707	628	200
21°	2637	2609	2564	2488	2384	2258	2117	1968	1649	586	180
22°	2577	2544	2495	2414	2309	2182	2037	1887	1570	541	162
23°	2470	2430	2387	2311	2203	2077	1936	1788	1479	497	146
24°	2332	2285	2241	2167	2068	1951	1817	1675	1375	456	131
25°	2168	2120	2079	2009	1914	1799	1674	1545	1262	420	113
27.5°	1702	1652	1618	1562	1487	1394	1293	1187	964	321	76
30°	1229	1186	1161	1118	1062	984	903	829	677	186	42
32.5°	768	721	701	675	638	593	547	503	418	116	23
35°	407	388	385	378	371	361	344	337	262	63	12
37.5°	225	215	210	197	190	173	167	157	122	34	4
40°	118	115	109	102	97	95	91	88	55	13	0
42.5°	37	36	34	33	31	21	18	17	13	5	0
45°	5	4	4	6	7	8	8	9	7	0	0
47.5°	0	0	0	0	0	0	0	0	0	0	0
50°	0	0	0	0	0	0	0	0	0	0	0
52.5°	0	0	0	0	0	0	0	0	0	0	0
55°	0	0	0	0	0	0	0	0	0	0	0
57.5°	0	0	0	0	0	0	0	0	0	0	1
60°	0	0	0	0	0	0	0	0	0	0	1
62.5°	0	0	0	0	0	0	0	0	0	0	1
65°	0	0	0	0	0	0	0	0	0	0	1
67.5°	0	0	0	0	0	0	0	0	0	0	1
70°	0	0	0	0	0	0	0	0	0	1	0
72.5°	0	0	0	0	0	0	0	0	0	0	0
75°	0	0	0	0	0	0	0	0	0	0	0
77.5°	0	0	0	0	0	0	0	0	0	0	0
80°	0	0	0	0	0	0	0	0	0	0	0
82.5°	0	0	0	0	0	0	0	0	0	0	0
85°	0	0	0	0	0	0	0	0	0	0	0
87.5°	0	0	0	0	0	0	0	0	0	0	0
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	90°	112.5°	135°	157.5°	180°
0°	424	424	424	424	424
2.5°	391	336	293	273	267
5°	348	264	215	193	186
7.5°	304	208	149	120	105
10°	262	136	81	63	55
12.5°	188	87	49	33	31
15°	137	57	31	19	14
16°	121	49	23	15	11
17°	110	42	18	11	8
18°	95	32	14	8	6
19°	82	25	11	6	5
20°	69	21	9	4	4
21°	55	17	7	3	3
22°	47	13	6	2	2
23°	38	10	4	1	1
24°	33	8	2	1	1
25°	28	6	1	1	1
27.5°	11	3	1	1	1
30°	6	2	1	1	1
32.5°	3	1	1	1	1
35°	1	1	1	1	1
37.5°	0	0	0	0	0
40°	0	0	0	0	1
42.5°	0	0	0	0	0
45°	0	1	0	0	0
47.5°	0	0	0	0	0
50°	0	1	0	0	0
52.5°	0	1	0	0	0
55°	1	1	1	0	0
57.5°	0	1	0	0	0
60°	0	1	0	0	0
62.5°	1	1	0	0	0
65°	1	1	0	0	0
67.5°	1	1	0	0	0
70°	0	0	0	0	0
72.5°	0	0	0	0	0
75°	0	0	0	0	0
77.5°	0	0	0	0	0
80°	0	0	0	0	0
82.5°	0	1	0	0	0
85°	0	0	0	0	0
87.5°	0	0	0	0	0
90°	0	0	0	0	0

(END OF REPORT)