

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: P13203

Luminaire Tested: **PA4-4AC_75PAR30SINC**

Issue Date: 03/03/2020



Test Information

Test Method: LM-79-08
Report Number: P13203
Test Lab: PEACHTREE CITY P1
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PA4-4AC_75PAR30SINC
Description: HALO INCANDESCENT RECESSED DOWNLIGHT FIXTURE WITH ADJUSTABLE
Light Source: (1) MEDIUM BASE PAR30 HALOGEN INCANDESCENT LAMP
75PAR30/H/SP10 130 75 WATTS
Ballast/Driver: (1) CHROMA 61604 AC SOURCE
(1) CHROMA 61604 AC SOURCE

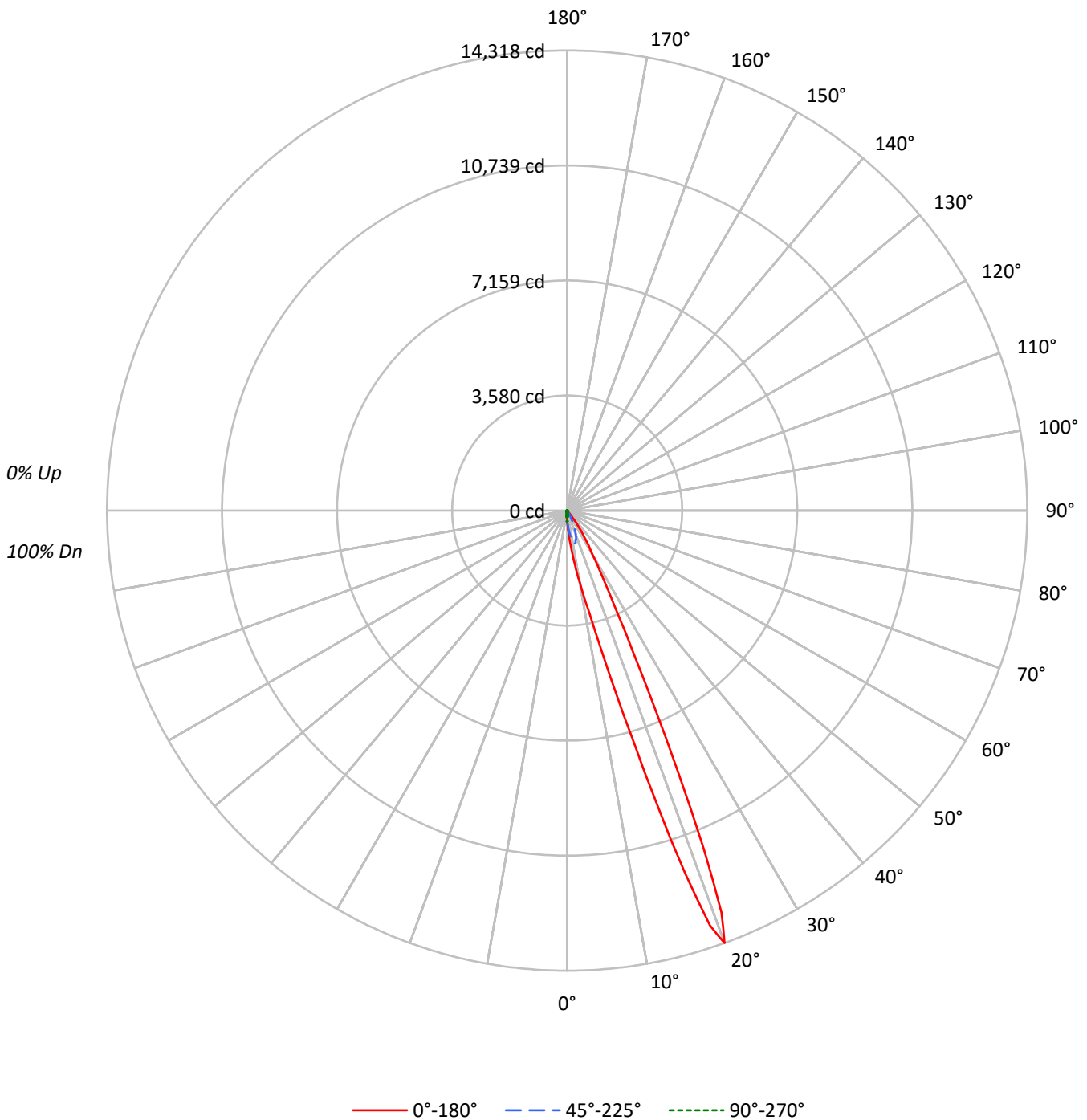
Summary

Lumens per Lamp: 1030 (1 lamp)
Luminaire Lumens: 696.3 lumens
Efficiency: 67.6%
Efficacy: 9.2 lumens/watt
Spacing Criteria (0/90/45): 1.44 / 0.37 / 0.76
Luminous Opening: Vertical Cylinder (Dia: 0.38' x H: 0.1')
CIE Type: Direct

Input Watts (W): 75.7
Input Voltage (V): NR
Input Current (Ain): 0.58164
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	50	30	10	50	30	10	0		
RCR																										
0	80	80	80	80	79	79	79	79	75	75	75	72	72	72	69	69	69	68								
1	77	75	73	72	75	73	72	71	71	70	68	68	67	66	66	65	65	63								
2	73	70	67	65	72	69	67	65	67	65	63	65	63	62	63	62	60	59								
3	70	66	63	60	69	65	62	60	63	61	59	61	59	58	60	58	57	56								
4	67	62	58	56	65	61	58	55	60	57	55	58	56	54	57	55	53	52								
5	64	58	55	52	63	58	54	52	56	53	51	55	53	51	54	52	50	49								
6	61	55	51	49	60	55	51	48	54	50	48	53	50	48	52	49	47	46								
7	58	52	48	46	57	52	48	45	51	48	45	50	47	45	49	47	45	44								
8	55	49	45	43	55	49	45	43	48	45	43	48	45	42	47	44	42	41								
9	53	47	43	40	52	46	43	40	46	43	40	45	42	40	45	42	40	39								
10	51	44	41	38	50	44	41	38	44	40	38	43	40	38	43	40	38	37								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	29043	29043	29043
5°	86647	27172	9691
10°	212233	15593	2614
15°	542778	6844	2867
20°	1321633	2308	369
25°	448578	1950	928
30°	148569	282	0
35°	62768	865	96
40°	10000	99	297
45°	2572	823	309
50°	0	108	0
55°	0	343	1030
60°	0	859	0
65°	1334	1334	1334
70°	0	0	2654
75°	0	0	0
80°	0	4796	959
85°	1833	1604	0



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	45°	90°	135°	180°	Flux
0°-10°	43.1	6.2	4.2	0°	298	298	298	298	298	
10°-20°	275.9	39.6	26.8	5°	912	613	286	130	102	131
20°-30°	293.4	42.1	28.5	15°	5869	1026	74	16	31	2218
30°-40°	62.7	9.0	6.1	25°	4832	442	21	10	10	2752
40°-50°	5.0	0.7	0.5	35°	653	54	9	10	1	433
50°-60°	5.2	0.7	0.5	45°	25	5	8	0	3	19
60°-70°	4.5	0.6	0.4	55°	0	0	3	9	9	0
70°-80°	3.2	0.5	0.3	65°	10	8	10	10	10	4
80°-90°	3.3	0.5	0.3	75°	0	0	0	0	0	0
90°-100°	0.0	0.0	0.0	85°	8	1	7	10	0	2
100°-110°	0.0	0.0	0.0	90°	0	0	0	0	0	
110°-120°	0.0	0.0	0.0							
120°-130°	0.0	0.0	0.0							
130°-140°	0.0	0.0	0.0							
140°-150°	0.0	0.0	0.0							
150°-160°	0.0	0.0	0.0							
160°-170°	0.0	0.0	0.0							
170°-180°	0.0	0.0	0.0							
0°-30°	612.5	88.0	59.5							
0°-40°	675.2	97.0	65.6							
0°-60°	685.5	98.4	66.5							
0°-90°	696.3	100.0	67.6							
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°	696.3	100.0	67.6							



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CANDELA DISTRIBUTION (FULL):

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	298	298	298	298	298	298	298	298	298	298	298
2.5°	522	510	513	510	520	514	510	514	515	518	517
5°	912	915	898	912	910	898	903	898	895	887	887
7.5°	1519	1514	1513	1504	1509	1483	1487	1483	1468	1464	1432
10°	2273	2273	2280	2268	2279	2240	2231	2213	2200	2165	2156
11°	2682	2681	2709	2676	2661	2639	2611	2607	2558	2528	2496
12°	3158	3173	3168	3138	3129	3096	3076	3032	2983	2953	2888
13°	3790	3798	3758	3757	3715	3673	3617	3571	3484	3429	3358
14°	4708	4682	4644	4601	4534	4442	4362	4263	4150	4062	3944
15°	5869	5863	5781	5694	5573	5450	5304	5163	4964	4839	4656
16°	7408	7398	7299	7138	6933	6743	6473	6196	5928	5652	5384
17°	9572	9514	9313	9094	8763	8403	7979	7562	7138	6728	6296
18°	11852	11771	11596	11202	10728	10167	9567	8922	8318	7675	7094
19°	13650	13571	13289	12816	12222	11474	10711	9936	9140	8348	7601
20°	14318	14219	13887	13395	12717	11928	11059	10161	9318	8427	7597
21°	13396	13304	13026	12565	11918	11165	10305	9514	8640	7838	7081
22°	11351	11318	10980	10623	10070	9465	8787	8100	7470	6807	6215
23°	8855	8828	8640	8325	7937	7481	6990	6541	6059	5640	5227
24°	6575	6491	6409	6183	5977	5727	5394	5114	4850	4527	4305
25°	4832	4786	4764	4656	4557	4366	4207	4068	3863	3692	3540
26°	3678	3639	3612	3567	3487	3409	3318	3216	3120	3007	2914
27°	2908	2867	2872	2823	2787	2726	2675	2607	2549	2472	2398
28°	2338	2332	2325	2289	2262	2241	2161	2123	2070	2013	1959
29°	1933	1944	1917	1905	1870	1840	1785	1743	1692	1652	1600
30°	1579	1592	1559	1564	1537	1495	1489	1421	1396	1353	1309
32.5°	1065	1060	1060	1046	1024	1004	979	954	937	920	888
35°	653	662	648	637	624	595	583	570	552	531	516
37.5°	315	306	312	302	300	289	280	267	258	251	232
40°	101	95	99	93	92	94	98	98	85	81	83
42.5°	22	19	31	28	17	19	17	19	45	23	12
45°	25	21	6	16	6	23	4	8	30	6	9
47.5°	6	19	7	12	5	5	23	17	12	19	21
50°	0	0	0	0	0	0	1	2	0	0	0
52.5°	0	13	1	4	1	1	0	10	4	21	1
55°	0	1	0	0	0	1	0	6	2	1	0
57.5°	0	1	16	3	6	0	8	5	0	0	21
60°	0	9	0	2	4	10	6	0	7	3	1
62.5°	6	19	0	2	0	0	12	3	2	2	8
65°	10	12	21	18	4	9	10	10	10	14	6
67.5°	0	4	0	2	0	8	0	0	1	0	0
70°	0	6	0	8	0	0	0	5	14	0	0
72.5°	0	1	0	1	3	1	1	0	0	1	0
75°	0	0	0	0	0	1	0	0	0	2	0
77.5°	0	1	3	1	6	3	2	1	1	8	0
80°	0	0	14	0	25	6	3	3	0	0	12



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CANDELA DISTRIBUTION (continued):

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
82.5°	0	0	0	0	0	0	0	0	0	0	0
85°	8	23	0	0	1	10	14	4	1	3	9
87.5°	0	12	1	3	9	5	6	1	8	5	0
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	12.5°	15°	17.5°	20°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0°	298	298	298	298	298	298	298	298	298	298	298
2.5°	518	511	505	500	487	457	405	344	304	263	236
5°	881	878	846	841	808	613	420	286	199	130	107
7.5°	1413	1385	1339	1301	1251	794	432	233	109	67	45
10°	2079	1993	1910	1823	1745	925	412	167	54	30	32
11°	2408	2311	2205	2079	1966	983	415	149	48	30	32
12°	2766	2649	2532	2354	2204	1036	392	149	42	30	32
13°	3180	3009	2811	2634	2434	1048	366	93	36	21	21
14°	3704	3438	3163	2920	2677	1050	349	80	36	20	22
15°	4235	3848	3481	3157	2832	1026	324	74	32	16	26
16°	4781	4218	3719	3283	2917	947	254	17	0	0	0
17°	5373	4587	3941	3425	3004	940	242	38	32	14	5
18°	5816	4818	4025	3451	2991	899	219	48	24	17	7
19°	6010	4819	3961	3323	2852	829	165	21	3	0	0
20°	5911	4683	3812	3182	2709	775	135	25	12	11	6
21°	5514	4362	3564	2980	2538	693	118	19	12	3	0
22°	4937	4006	3311	2784	2369	624	90	53	15	17	3
23°	4269	3567	3003	2565	2186	543	72	25	9	8	4
24°	3667	3127	2700	2337	2037	467	57	16	8	11	0
25°	3128	2752	2412	2109	1877	442	83	21	6	10	8
26°	2643	2373	2114	1871	1630	348	41	20	4	5	8
27°	2203	2021	1819	1613	1418	293	33	10	4	6	5
28°	1819	1665	1519	1352	1186	224	10	7	0	0	0
29°	1501	1391	1269	1140	1016	194	22	18	5	5	12
30°	1236	1163	1062	971	878	140	20	3	0	41	5
32.5°	837	778	711	655	569	75	25	14	5	8	3
35°	467	461	395	343	299	54	13	9	2	10	12
37.5°	214	185	167	134	110	14	3	0	4	0	1
40°	74	61	49	48	36	10	4	1	7	1	0
42.5°	21	10	10	16	10	5	0	3	0	0	0
45°	12	16	2	3	17	5	9	8	0	0	1
47.5°	17	10	7	12	6	10	4	5	3	13	17
50°	0	0	0	0	0	1	0	1	0	0	0
52.5°	6	0	3	6	2	1	34	4	3	43	23
55°	1	1	4	6	1	0	2	3	2	9	6
57.5°	1	0	0	0	1	2	0	26	0	0	0
60°	0	0	2	0	4	1	0	7	0	0	3
62.5°	1	4	1	6	1	8	5	6	6	2	3
65°	10	5	10	16	17	8	6	10	9	10	10
67.5°	1	0	5	0	1	5	0	5	0	0	0
70°	12	1	10	0	5	0	3	0	3	0	0
72.5°	0	1	6	1	8	6	5	6	0	8	1
75°	0	14	0	1	0	0	0	0	0	0	0
77.5°	2	7	6	6	5	3	1	6	4	1	0
80°	0	0	27	0	0	0	5	25	6	0	0



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CANDELA DISTRIBUTION (continued):

	12.5°	15°	17.5°	20°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
82.5°	0	0	0	0	0	0	0	0	0	0	0
85°	3	1	1	12	9	1	5	7	0	10	14
87.5°	0	6	0	0	0	8	2	10	3	0	0
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	180°
0°	298
2.5°	249
5°	102
7.5°	52
10°	28
11°	16
12°	30
13°	18
14°	25
15°	31
16°	0
17°	6
18°	13
19°	0
20°	4
21°	14
22°	5
23°	3
24°	32
25°	10
26°	10
27°	14
28°	0
29°	18
30°	0
32.5°	14
35°	1
37.5°	0
40°	3
42.5°	0
45°	3
47.5°	14
50°	0
52.5°	8
55°	9
57.5°	3
60°	0
62.5°	0
65°	10
67.5°	3
70°	18
72.5°	5
75°	0
77.5°	10
80°	5



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CANDELA DISTRIBUTION (continued):

	180°
82.5°	0
85°	0
87.5°	0
90°	0

(END OF REPORT)