

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P358817

Luminaire Tested: **HL36AR13SPD2WED010TL3RMW-TILTED 30D**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P358817
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-462-2)
Test Lab: INNOVATION CENTER (G3)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL36AR13SPD2WED010TL3RMW-TILTED 30D
Description: HL3 13W Round tilted 30D, Spot optic with conical trim, No Lens, Matte White
Light Source: (1) 3100K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1031.0 lumens
Efficiency: N/A
Efficacy: 71.6 lumens/watt
Spacing Criteria (0/90/45): 2.15 / 0.6 / 1.13
Luminous Opening: Rectangular (W 0.27' x L: 0.27' x H: 0')
CIE Type: Direct

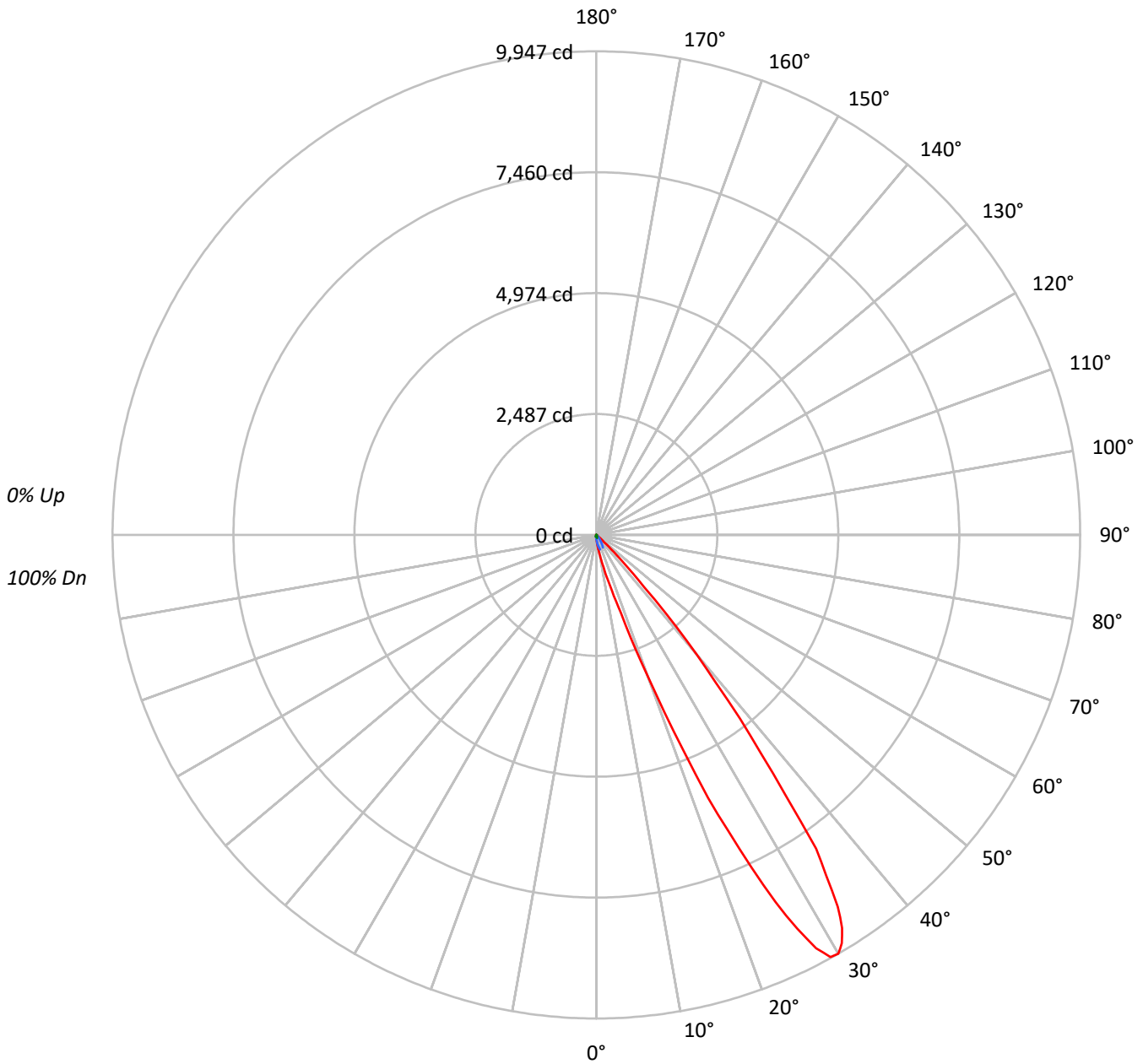
Input Watts (W): 14.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	113	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	93	92					92			
2	106	100	95	92	103	98	94	90	95	92	88	92	89	87	89	87	85	83					83			
3	99	92	86	81	97	90	85	81	87	83	79	85	81	78	83	79	77	75					75			
4	93	84	77	72	91	83	77	72	80	75	71	78	74	70	76	73	69	68					68			
5	87	77	70	65	85	76	69	64	74	68	64	72	67	63	70	66	63	61					61			
6	81	70	63	58	79	70	63	58	68	62	58	66	61	57	65	60	57	55					55			
7	76	65	57	52	74	64	57	52	62	56	52	61	56	52	60	55	51	50					50			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45					45			
9	66	55	47	43	65	54	47	43	53	47	42	52	46	42	51	46	42	40					40			
10	62	50	43	39	61	50	43	39	49	43	38	48	42	38	47	42	38	37					37			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	12503	12503	12503
5°	29196	11460	6408
10°	64030	9939	3457
15°	161509	8022	1413
20°	481704	5778	578
25°	1222924	3449	0
30°	1685432	1576	0
35°	1411423	161	0
40°	615743	0	0
45°	119351	0	0
50°	16072	0	205
55°	2610	230	716
60°	264	558	1350
65°	313	660	1944
70°	386	815	2403
75°	510	1077	3175
80°	0	1606	2366
85°	0	3199	1515



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	10.8	1.0
10°-20°	76.2	7.4
20°-30°	400.1	38.8
30°-40°	455.9	44.2
40°-50°	76.9	7.5
50°-60°	4.1	0.4
60°-70°	2.9	0.3
70°-80°	2.8	0.3
80°-90°	1.4	0.1
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°	487.1	47.2
0°-40°	943.0	91.5
0°-60°	1023.9	99.3
0°-90°	1031.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1031.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	85	85	85	85	85	
5°	198	141	78	52	44	26
15°	1063	319	53	17	9	401
25°	7553	351	21	2	0	3456
35°	7879	141	1	0	0	4442
45°	575	31	0	1	0	721
55°	10	2	1	2	3	18
65°	1	2	2	6	6	1
75°	1	2	2	5	6	1
85°	0	2	2	2	1	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°	20°	22.5°	45°
0°	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2
2.5°	121.3	123.2	121.3	122.2	123.2	120.4	122.2	118.5	118.5	119.5	107.4
5°	198.2	194.5	196.3	198.2	192.6	192.6	187.1	185.2	186.1	180.6	140.8
7.5°	295.4	294.5	298.2	291.7	289.9	282.4	276.9	275.0	268.6	263.9	188.0
10°	429.7	447.3	443.6	436.2	421.3	419.5	398.2	392.6	381.5	370.4	233.4
12.5°	679.7	652.9	660.3	649.2	635.3	615.8	589.9	568.6	537.1	512.1	275.0
15°	1063.1	1023.3	1024.2	991.8	968.6	912.1	876.0	827.9	763.1	718.6	318.6
17.5°	1676.1	1710.4	1647.4	1608.5	1530.7	1410.4	1309.4	1204.8	1102.9	998.3	351.0
20°	3084.6	3118.0	2986.5	2804.0	2567.0	2342.0	2053.0	1804.8	1588.2	1373.3	370.4
21°	3900.5	3924.6	3824.5	3461.5	3192.1	2792.0	2491.0	2129.0	1860.4	1561.3	374.1
22°	4786.7	4725.6	4609.8	4179.2	3856.0	3524.5	2968.0	2549.4	2132.7	1750.2	373.2
23°	5875.7	5678.5	5483.1	5119.1	4657.0	4043.1	3448.6	2932.8	2401.2	1958.6	369.5
24°	6656.4	6565.6	6320.2	5820.2	5430.3	4775.6	3982.9	3297.6	2731.8	2154.9	362.1
25°	7552.8	7474.1	7146.2	6654.5	6091.5	5388.6	4495.9	3752.3	2982.8	2349.4	351.0
26°	8404.7	8261.2	7888.0	7426.8	6713.8	5813.7	4946.0	4075.5	3238.4	2510.5	335.2
27°	9090.9	8957.6	8689.9	8007.5	7222.2	6318.4	5359.0	4347.8	3419.9	2636.4	314.9
28°	9628.9	9540.0	9150.2	8518.6	7671.3	6640.6	5544.2	4533.9	3536.5	2699.4	282.4
29°	9928.1	9799.3	9423.4	8803.8	7929.7	6858.2	5710.9	4631.1	3596.7	2705.0	261.1
30°	9946.6	9847.5	9509.5	8885.3	7974.1	6900.8	5748.8	4620.0	3561.5	2660.5	237.1
31°	9799.3	9720.6	9383.5	8759.4	7873.2	6792.5	5649.8	4516.3	3458.8	2554.9	214.8
32°	9532.6	9446.5	9053.0	8411.2	7621.3	6514.7	5387.7	4301.4	3282.8	2387.3	192.6
33°	9115.9	8981.6	8537.1	7963.9	7125.9	6120.2	5058.9	4033.8	3032.8	2238.2	175.9
34°	8444.5	8351.9	7893.6	7362.0	6570.2	5607.2	4634.8	3702.3	2760.5	1997.5	158.4
35°	7878.7	7527.8	7138.8	6577.7	5827.6	5006.2	4096.8	3237.4	2429.0	1766.9	140.8
36°	6597.1	6582.3	6118.3	5699.8	5071.9	4285.7	3484.7	2794.8	2058.6	1538.1	127.8
37°	5620.1	5625.7	5224.7	4815.4	4270.0	3538.4	2879.1	2275.3	1693.7	1319.6	112.1
38°	4795.0	4764.5	4436.6	3956.0	3472.6	2862.4	2248.4	1740.0	1364.1	1052.0	98.2
39°	3892.1	3917.1	3573.6	3214.3	2792.0	2295.6	1797.4	1364.1	1047.3	797.3	87.0
40°	3214.3	3152.2	2905.9	2559.6	2146.6	1724.3	1379.8	1066.8	822.3	645.4	75.9
42.5°	1451.1	1417.8	1310.3	1224.2	997.3	825.1	701.0	597.3	479.7	398.2	50.9
45°	575.1	558.4	550.1	522.3	467.6	423.2	371.3	332.4	290.8	236.1	30.6
47.5°	211.1	232.4	230.6	211.1	201.0	193.5	173.2	163.0	153.7	134.3	13.9
50°	70.4	68.5	66.7	63.9	62.0	58.3	54.6	50.9	50.0	47.2	7.4
52.5°	31.5	31.5	31.5	31.5	29.6	28.7	26.9	25.0	24.1	21.3	3.7
55°	10.2	10.2	11.1	10.2	11.1	10.2	9.3	9.3	9.3	9.3	1.9
57.5°	3.7	3.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	0.9
60°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
62.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
65°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9
67.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9
77.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	1.9
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.9



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CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	45°
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9
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):

	67.5°	90°	112.5°	135°	157.5°	180°
0°	85.2	85.2	85.2	85.2	85.2	85.2
2.5°	92.6	81.5	72.2	66.7	63.0	60.2
5°	102.8	77.8	62.0	51.9	46.3	43.5
7.5°	112.1	72.2	51.9	40.7	34.3	31.5
10°	121.3	66.7	43.5	31.5	25.0	23.2
12.5°	129.6	60.2	36.1	24.1	15.7	13.9
15°	129.6	52.8	29.6	16.7	10.2	9.3
17.5°	122.2	46.3	23.2	11.1	6.5	6.5
20°	110.2	37.0	16.7	7.4	4.6	3.7
21°	102.8	33.3	13.9	5.6	3.7	2.8
22°	94.5	29.6	11.1	4.6	2.8	1.9
23°	84.3	26.9	8.3	3.7	1.9	1.9
24°	75.0	24.1	6.5	2.8	0.9	0.9
25°	68.5	21.3	4.6	1.9	0.9	0.0
26°	62.0	19.4	3.7	0.9	0.0	0.0
27°	56.5	17.6	1.9	0.9	0.0	0.0
28°	50.0	14.8	1.9	0.0	0.0	0.0
29°	44.4	11.1	0.9	0.0	0.0	0.0
30°	39.8	9.3	0.9	0.0	0.0	0.0
31°	36.1	6.5	0.9	0.0	0.0	0.0
32°	32.4	4.6	0.0	0.0	0.0	0.0
33°	27.8	2.8	0.0	0.0	0.0	0.0
34°	24.1	1.9	0.0	0.0	0.0	0.0
35°	19.4	0.9	0.0	0.0	0.0	0.0
36°	14.8	0.9	0.0	0.0	0.0	0.0
37°	11.1	0.9	0.0	0.0	0.0	0.0
38°	8.3	0.9	0.0	0.0	0.0	0.0
39°	5.6	0.0	0.0	0.0	0.0	0.0
40°	3.7	0.0	0.0	0.0	0.0	0.0
42.5°	1.9	0.0	0.9	0.9	0.0	0.0
45°	0.9	0.0	0.9	0.9	0.9	0.0
47.5°	0.0	0.0	0.9	0.9	0.9	0.9
50°	0.0	0.0	0.9	0.9	0.9	0.9
52.5°	0.0	0.0	0.9	1.9	1.9	1.9
55°	0.0	0.9	1.9	1.9	2.8	2.8
57.5°	0.9	0.9	1.9	3.7	3.7	3.7
60°	0.9	1.9	2.8	4.6	4.6	4.6
62.5°	1.9	1.9	3.7	4.6	5.6	5.6
65°	1.9	1.9	3.7	5.6	5.6	5.6
67.5°	1.9	1.9	3.7	5.6	5.6	5.6
70°	1.9	1.9	3.7	4.6	5.6	5.6
72.5°	1.9	1.9	3.7	4.6	5.6	5.6
75°	1.9	1.9	2.8	4.6	5.6	5.6
77.5°	1.9	1.9	2.8	3.7	3.7	3.7
80°	1.9	1.9	1.9	2.8	3.7	2.8



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CANDELA DISTRIBUTION (continued):

	67.5°	90°	112.5°	135°	157.5°	180°
82.5°	1.9	1.9	1.9	1.9	1.9	1.9
85°	1.9	1.9	1.9	1.9	0.9	0.9
87.5°	1.9	0.9	1.9	0.9	0.9	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)