

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: P358816

Luminaire Tested: **HL36AR13SPD2WED010TL3R2GMW-TILTED 30D**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P358816
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-462-4)
Test Lab: INNOVATION CENTER (G3)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL36AR13SPD2WED010TL3R2GMW-TILTED 30D
Description: HL3 13W Round tilted 30D, Spot optic with conical trim, Lensed, Matte White
Light Source: (1) 3100K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 935.0 lumens
Efficiency: N/A
Efficacy: 64.9 lumens/watt
Spacing Criteria (0/90/45): 2.4 / 0.58 / 1.12
Luminous Opening: Rectangular (W 0.27' x L: 0.27' x H: 0')
CIE Type: Direct

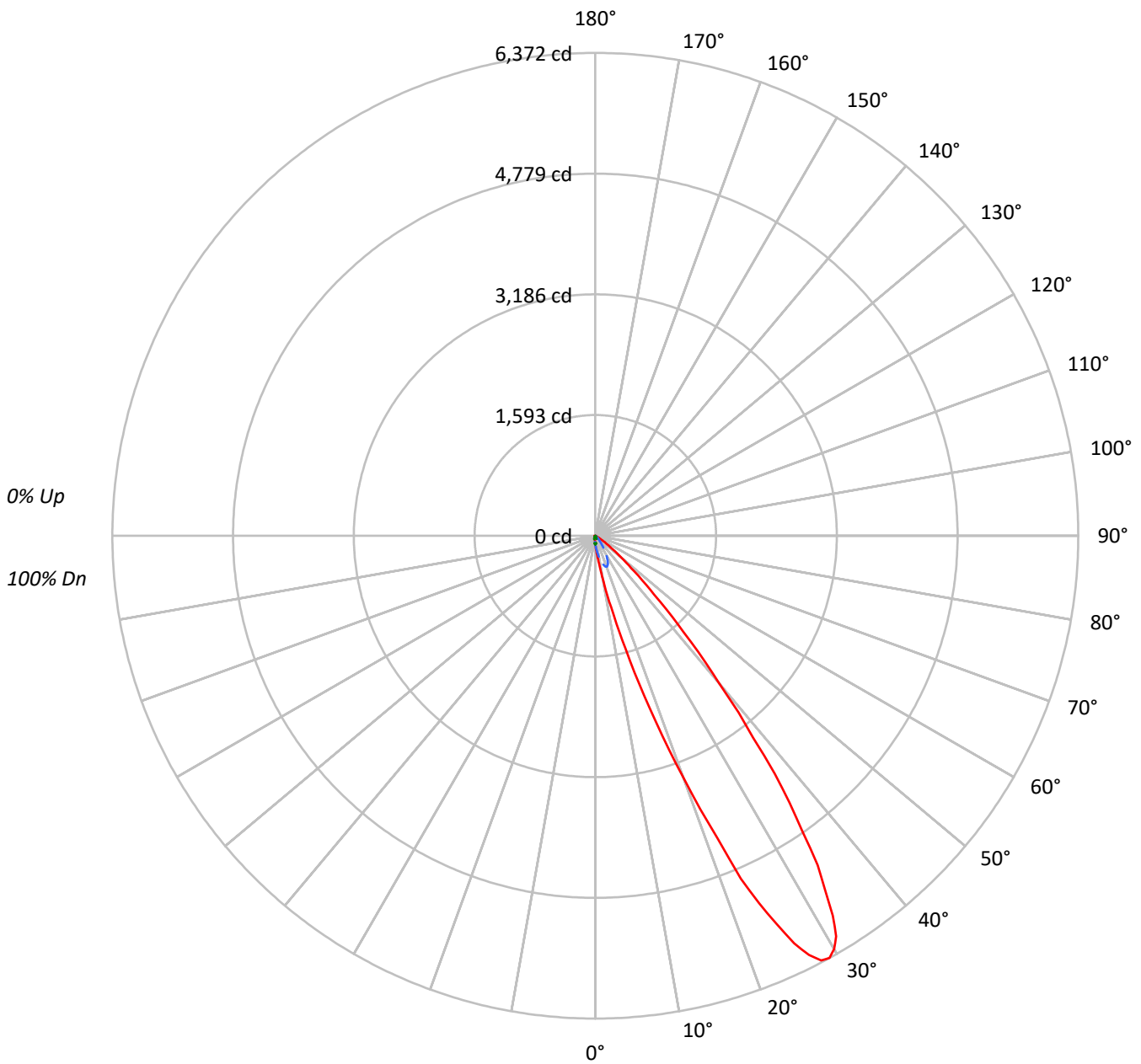
Input Watts (W): 14.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot



0% Up
100% Dn

— 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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82
3	99	91	85	81	97	90	84	80	87	82	79	84	81	77	82	79	76	74
4	92	83	77	72	90	82	76	71	80	75	70	78	73	69	76	72	69	67
5	86	76	69	64	84	75	69	64	73	68	63	72	67	63	70	66	62	60
6	81	70	63	58	79	69	62	57	67	61	57	66	61	57	64	60	56	54
7	75	64	57	52	74	63	57	52	62	56	51	61	55	51	60	55	51	49
8	70	59	52	47	69	58	52	47	57	51	47	56	50	46	55	50	46	44
9	66	54	47	43	65	54	47	42	53	47	42	52	46	42	51	46	42	40
10	62	50	43	39	61	50	43	39	49	43	38	48	42	38	47	42	38	37

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16597	16597	16597
5°	35354	15423	8470
10°	89346	13262	4694
15°	234979	10559	2674
20°	530396	7527	1593
25°	913793	4647	1052
30°	1067319	2830	627
35°	854464	1326	663
40°	487664	709	881
45°	228657	394	1162
50°	100291	205	1484
55°	41242	486	2379
60°	14968	822	3522
65°	4514	972	4514
70°	815	1201	5149
75°	510	1077	4196
80°	761	1606	3887
85°	0	1515	3199



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.9	1.5
10°-20°	100.0	10.7
20°-30°	339.6	36.3
30°-40°	337.5	36.1
40°-50°	109.6	11.7
50°-60°	22.3	2.4
60°-70°	7.0	0.7
70°-80°	3.8	0.4
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°	453.5	48.5
0°-40°	791.0	84.6
0°-60°	922.9	98.7
0°-90°	935.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	935.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	113	113	113	113	113	
5°	240	187	105	66	58	34
15°	1547	388	70	25	18	528
25°	5644	390	29	8	6	2535
35°	4770	169	7	4	4	2886
45°	1102	44	2	4	6	948
55°	161	8	2	6	9	167
65°	13	4	3	8	13	18
75°	1	2	2	6	7	1
85°	0	1	1	2	2	0
90°	0	0	0	0	0	



TEST NUMBER: P358816

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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	22.5°	45°	67.5°	90°
0°	113.1	113.1	113.1	113.1	113.1	113.1	113.1	113.1	113.1	113.1	113.1
2.5°	164.0	165.9	165.9	164.0	165.0	162.2	164.0	160.3	146.4	127.0	109.4
5°	240.0	245.6	243.7	240.9	244.6	241.9	238.2	228.0	187.2	140.9	104.7
7.5°	366.0	372.5	372.5	366.0	364.2	361.4	347.5	330.8	234.5	151.1	97.3
10°	599.6	593.1	566.2	571.8	563.4	543.0	530.1	479.1	288.2	156.6	89.0
12.5°	961.9	942.5	925.8	895.2	897.0	865.5	824.8	696.0	340.1	158.5	79.7
15°	1546.7	1533.7	1504.0	1468.8	1380.8	1317.8	1285.3	984.2	388.3	153.8	69.5
17.5°	2377.0	2370.5	2296.4	2203.7	2112.9	2002.6	1829.3	1366.0	422.6	142.7	58.4
20°	3396.4	3464.0	3376.9	3142.4	3006.2	2813.5	2549.4	1762.6	435.6	126.0	48.2
21°	3869.0	3906.1	3800.4	3628.0	3422.3	3113.7	2845.0	1930.3	433.7	118.6	43.6
22°	4309.2	4379.6	4219.3	4025.6	3793.9	3461.2	3133.2	2071.2	426.3	110.3	39.8
23°	4916.2	4830.9	4640.0	4430.6	4141.4	3810.6	3387.1	2203.7	417.9	101.0	36.1
24°	5303.5	5250.7	5106.1	4791.1	4514.9	4083.1	3636.4	2315.8	405.0	94.5	32.4
25°	5643.6	5623.2	5408.2	5140.4	4777.2	4313.8	3823.6	2386.3	390.1	86.2	28.7
26°	5984.6	5917.0	5725.2	5394.3	4986.6	4518.6	3997.8	2432.6	369.8	78.8	25.9
27°	6209.8	6124.6	5937.4	5603.8	5155.2	4628.9	4073.8	2440.0	349.4	71.4	24.1
28°	6347.9	6266.4	6045.8	5702.9	5241.4	4682.6	4098.8	2420.5	327.1	64.9	21.3
29°	6372.0	6305.3	6080.1	5720.5	5247.0	4670.6	4084.0	2350.1	302.1	58.4	18.5
30°	6298.8	6231.1	6020.8	5661.2	5160.8	4581.6	3991.3	2255.6	278.0	51.9	16.7
31°	6168.1	6071.8	5851.2	5503.7	5023.7	4444.5	3842.1	2152.7	253.9	47.3	14.8
32°	5912.4	5837.3	5628.8	5269.2	4783.6	4234.1	3644.7	2011.9	232.6	42.6	13.0
33°	5553.7	5538.9	5323.9	4963.4	4536.2	3991.3	3417.7	1853.4	207.6	38.0	11.1
34°	5244.2	5114.5	4937.5	4645.6	4184.1	3691.1	3155.4	1686.6	188.1	32.4	9.3
35°	4769.7	4709.5	4533.4	4210.0	3801.3	3372.3	2881.1	1564.3	168.7	28.7	7.4
36°	4358.3	4230.4	4113.6	3811.5	3451.0	2993.2	2533.6	1364.1	150.1	24.1	6.5
37°	3934.8	3836.5	3669.7	3383.4	3082.2	2664.3	2310.3	1234.4	134.4	21.3	5.6
38°	3386.2	3382.5	3284.2	2983.1	2665.2	2340.9	1986.9	1055.5	119.5	16.7	4.6
39°	3002.5	2946.0	2794.0	2595.7	2311.2	2028.6	1687.5	908.2	105.6	14.8	3.7
40°	2545.7	2569.7	2419.6	2214.8	1989.6	1731.1	1453.1	786.8	92.7	12.0	3.7
42.5°	1726.4	1725.5	1646.8	1473.5	1315.9	1153.7	1001.8	531.0	64.9	7.4	2.8
45°	1101.8	1093.5	1061.1	953.6	879.4	736.7	644.1	349.4	43.6	4.6	1.9
47.5°	692.2	715.4	662.6	605.1	534.7	482.8	404.0	224.3	27.8	2.8	1.9
50°	439.3	420.7	407.7	379.0	334.5	292.8	245.6	144.6	17.6	1.9	0.9
52.5°	263.2	268.7	248.4	231.7	202.9	176.1	150.1	84.3	12.0	0.9	1.9
55°	161.2	160.3	149.2	138.1	127.0	105.6	90.8	51.9	8.3	1.9	1.9
57.5°	89.9	89.9	85.3	78.8	69.5	63.0	54.7	30.6	6.5	1.9	2.8
60°	51.0	50.0	48.2	44.5	39.8	34.3	28.7	18.5	4.6	1.9	2.8
62.5°	26.9	25.9	25.0	23.2	21.3	18.5	15.8	11.1	3.7	1.9	2.8
65°	13.0	13.0	13.0	11.1	11.1	9.3	8.3	6.5	3.7	2.8	2.8
67.5°	5.6	5.6	5.6	4.6	4.6	4.6	4.6	3.7	2.8	2.8	2.8
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.8	1.9	2.8
72.5°	0.9	0.9	0.9	0.9	0.9	1.9	1.9	1.9	1.9	1.9	2.8
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9	1.9	1.9
77.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9	1.9	1.9
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9	1.9



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CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	22.5°	45°	67.5°	90°
82.5°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	1.9	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	1.9	0.9
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):

	112.5°	135°	157.5°	180°
0°	113.1	113.1	113.1	113.1
2.5°	95.5	86.2	80.6	77.8
5°	80.6	65.8	58.4	57.5
7.5°	67.6	51.0	43.6	40.8
10°	55.6	40.8	33.4	31.5
12.5°	45.4	31.5	25.0	23.2
15°	37.1	25.0	18.5	17.6
17.5°	29.7	18.5	13.9	13.0
20°	23.2	13.9	11.1	10.2
21°	20.4	13.0	10.2	9.3
22°	18.5	11.1	9.3	8.3
23°	16.7	10.2	8.3	7.4
24°	14.8	9.3	7.4	6.5
25°	13.0	8.3	6.5	6.5
26°	11.1	7.4	5.6	5.6
27°	10.2	6.5	5.6	5.6
28°	9.3	5.6	4.6	4.6
29°	7.4	5.6	4.6	4.6
30°	6.5	4.6	4.6	3.7
31°	6.5	4.6	3.7	3.7
32°	5.6	3.7	3.7	3.7
33°	4.6	3.7	3.7	3.7
34°	4.6	3.7	3.7	3.7
35°	3.7	3.7	3.7	3.7
36°	3.7	3.7	3.7	3.7
37°	3.7	3.7	3.7	3.7
38°	3.7	3.7	3.7	4.6
39°	2.8	3.7	3.7	4.6
40°	2.8	3.7	3.7	4.6
42.5°	2.8	3.7	4.6	4.6
45°	2.8	3.7	4.6	5.6
47.5°	2.8	4.6	5.6	6.5
50°	2.8	4.6	6.5	6.5
52.5°	3.7	5.6	7.4	8.3
55°	3.7	6.5	8.3	9.3
57.5°	4.6	7.4	9.3	11.1
60°	5.6	7.4	10.2	12.0
62.5°	5.6	8.3	11.1	12.0
65°	5.6	8.3	11.1	13.0
67.5°	5.6	8.3	11.1	12.0
70°	4.6	7.4	10.2	12.0
72.5°	4.6	6.5	9.3	10.2
75°	3.7	5.6	8.3	7.4
77.5°	2.8	4.6	5.6	5.6
80°	2.8	3.7	4.6	4.6



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CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
82.5°	1.9	2.8	2.8	2.8
85°	1.9	1.9	1.9	1.9
87.5°	0.9	0.9	0.9	0.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)