

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: P358798

Luminaire Tested: **HL36AR13NFLD2WED010TL3PIN2GMWWB-TILTED 30D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P358798  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-462-16)  
Test Lab: INNOVATION CENTER (G3)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL36AR13NFLD2WED010TL3PIN2GMWWB-TILTED 30D  
Description: HL3 13W Round tilted 30D, Narrow Flood optic with pin-hole trim,  
Lensed, Matte White  
Light Source: (1) 3100K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 761.0 lumens  
Efficiency: N/A  
Efficacy: 52.8 lumens/watt  
Spacing Criteria (0/90/45): 2.32 / 0.54 / 1.05  
Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')  
CIE Type: Direct

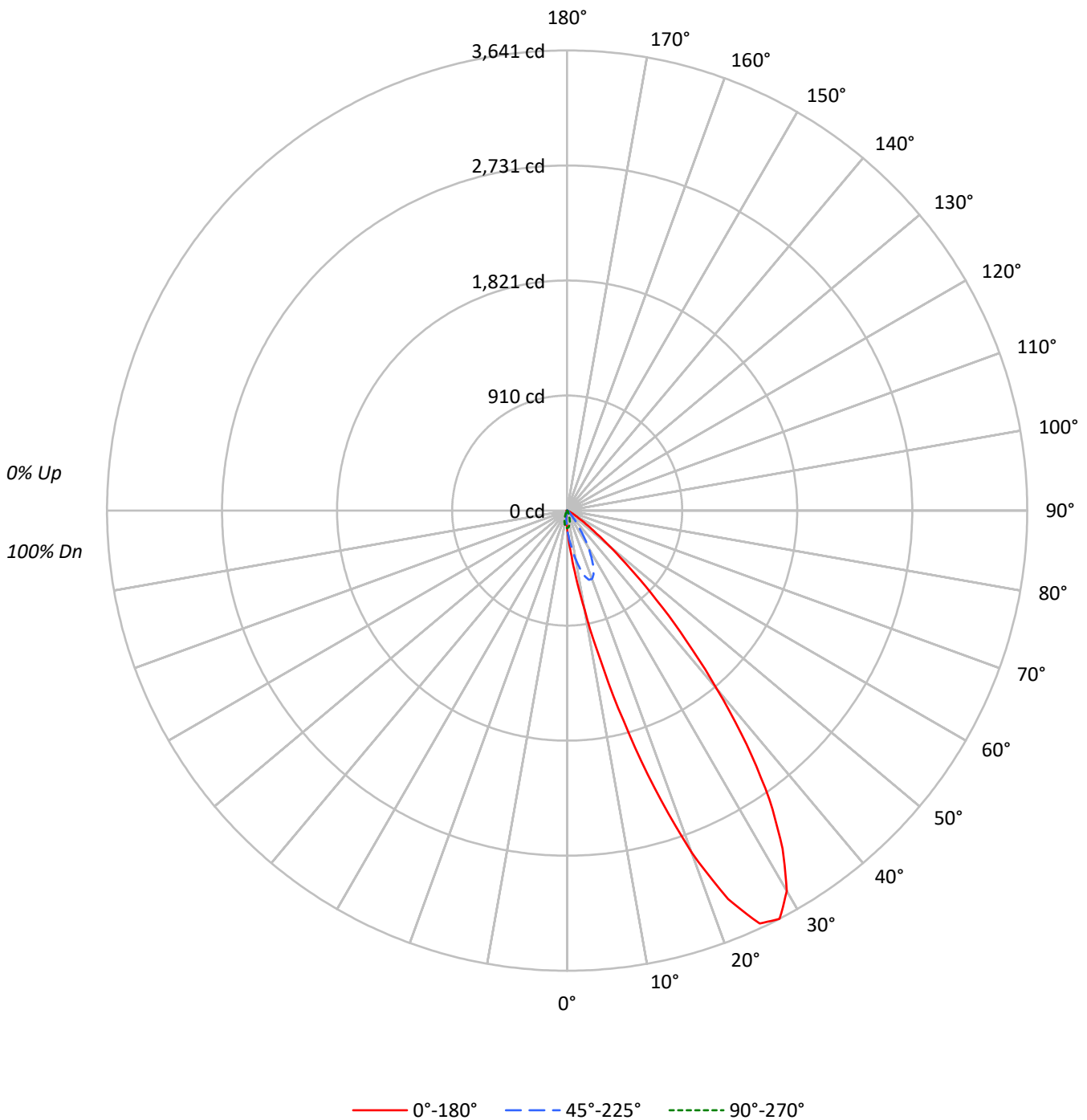
Input Watts (W): 14.4  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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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	104	98	94	91	95	92	89	92	89	87	89	87	85	83					83			
3	99	92	86	81	97	90	85	81	88	83	79	85	81	78	83	80	77	75					75			
4	93	84	78	73	91	83	77	72	81	75	71	79	74	70	77	73	70	68					68			
5	87	77	70	65	85	76	70	65	74	69	64	73	68	64	71	67	63	62					62			
6	82	71	64	59	80	70	64	59	69	63	58	67	62	58	66	61	57	56					56			
7	76	65	58	53	75	65	58	53	63	57	53	62	57	53	61	56	52	51					51			
8	72	60	53	49	70	60	53	48	59	53	48	58	52	48	56	51	48	46					46			
9	67	56	49	44	66	55	49	44	54	48	44	53	48	44	52	47	44	42					42			
10	63	52	45	41	62	51	45	40	50	44	40	50	44	40	49	44	40	39					39			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	53862	53862	53862
5°	126146	50801	21977
10°	314231	43007	8381
15°	690211	31211	3330
20°	1185889	19876	1155
25°	1541348	10304	0
30°	1555411	4564	0
35°	1320943	1750	0
40°	934042	455	0
45°	547842	493	493
50°	261392	543	1688
55°	111404	608	2500
60°	43787	1472	3565
65°	16137	1742	4218
70°	6345	2153	5212
75°	2845	2845	5540
80°	2008	4240	6248
85°	0	4001	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	17.8	2.3
10°-20°	112.2	14.7
20°-30°	265.6	34.9
30°-40°	241.6	31.7
40°-50°	96.1	12.6
50°-60°	19.6	2.6
60°-70°	4.8	0.6
70°-80°	2.5	0.3
80°-90°	0.9	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°	395.6	52.0
0°-40°	637.1	83.7
0°-60°	752.8	98.9
0°-90°	761.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	761.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	139	139	139	139	139	
5°	324	246	131	74	56	46
15°	1720	536	78	16	8	531
25°	3605	487	24	2	0	1599
35°	2792	172	4	0	0	1700
45°	1000	32	1	1	1	797
55°	165	6	1	2	4	169
65°	18	3	2	4	5	22
75°	2	2	2	3	4	2
85°	0	1	1	1	0	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	139.0	139.0	139.0	139.0	139.0	139.0	139.0	139.0	139.0	139.0	139.0
2.5°	211.2	212.2	214.0	205.7	207.5	204.8	202.9	199.2	194.6	191.8	186.2
5°	324.3	330.8	330.8	319.6	309.4	307.6	302.0	289.1	274.2	258.5	245.5
7.5°	525.3	516.1	503.1	479.9	461.4	452.1	440.1	402.1	378.9	344.7	317.8
10°	798.6	780.1	747.7	732.9	670.8	643.0	630.9	567.9	508.6	452.1	392.8
12.5°	1197.0	1171.1	1134.0	1045.1	969.1	927.4	863.5	762.5	660.6	564.2	468.8
15°	1720.5	1702.9	1596.3	1482.4	1344.3	1238.7	1161.8	983.0	830.1	675.4	536.4
17.5°	2298.6	2266.2	2141.1	1974.4	1728.8	1601.0	1481.5	1210.9	968.2	753.2	574.4
20°	2875.8	2798.0	2667.4	2434.8	2115.2	1926.2	1762.2	1395.3	1067.3	793.1	575.4
22.5°	3326.1	3279.8	3086.1	2810.0	2407.9	2186.5	1954.9	1504.6	1100.7	782.9	545.7
25°	3605.0	3534.6	3346.5	3021.3	2583.1	2330.1	2056.8	1511.1	1064.5	730.1	487.3
27.5°	3641.1	3580.9	3385.4	3054.6	2575.6	2297.7	2003.1	1424.0	965.4	637.4	414.1
30°	3476.2	3407.6	3214.9	2895.3	2407.0	2116.1	1820.6	1261.0	825.5	522.5	335.4
32.5°	3171.4	3107.4	2918.4	2619.2	2107.8	1842.8	1553.7	1046.9	659.7	409.5	244.6
35°	2792.4	2741.5	2553.4	2220.8	1765.0	1500.9	1259.1	819.9	503.1	298.3	172.3
37.5°	2331.1	2296.8	2131.9	1822.4	1389.7	1178.5	957.1	606.9	365.0	207.5	114.0
40°	1846.5	1821.5	1653.8	1373.1	1018.2	852.4	692.1	424.3	247.4	135.3	76.0
42.5°	1391.6	1358.2	1220.2	982.1	714.3	575.4	467.0	283.5	160.3	86.2	49.1
45°	999.7	958.0	850.5	668.0	478.1	373.4	306.7	177.0	101.0	55.6	31.5
47.5°	665.2	639.3	569.8	433.6	302.0	240.0	191.8	112.1	63.9	36.1	20.4
50°	433.6	406.7	354.8	273.3	184.4	151.0	117.7	71.3	39.8	23.2	13.9
52.5°	262.2	253.9	218.7	162.1	109.3	88.0	68.6	41.7	24.1	14.8	9.3
55°	164.9	152.9	128.8	91.7	61.1	47.3	39.8	24.1	15.8	10.2	6.5
57.5°	97.3	88.0	71.3	51.0	35.2	27.8	22.2	14.8	10.2	7.4	4.6
60°	56.5	51.9	41.7	29.6	20.4	16.7	13.9	10.2	7.4	5.6	3.7
62.5°	32.4	28.7	24.1	17.6	13.0	11.1	9.3	7.4	5.6	3.7	3.7
65°	17.6	15.8	13.0	10.2	8.3	7.4	6.5	5.6	4.6	3.7	2.8
67.5°	9.3	8.3	7.4	6.5	5.6	4.6	4.6	3.7	3.7	2.8	2.8
70°	5.6	4.6	4.6	4.6	3.7	3.7	3.7	2.8	2.8	2.8	1.9
72.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	1.9	1.9	1.9
75°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
77.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	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°	139.0	139.0	139.0	139.0	139.0	139.0
2.5°	161.2	136.2	115.8	101.9	93.6	91.7
5°	180.7	130.6	94.5	74.1	60.2	56.5
7.5°	197.3	120.4	76.9	51.9	38.9	34.3
10°	205.7	109.3	60.2	35.2	25.0	21.3
12.5°	205.7	94.5	46.3	24.1	15.8	13.0
15°	193.6	77.8	34.3	15.8	10.2	8.3
17.5°	173.3	62.1	24.1	11.1	6.5	4.6
20°	147.3	48.2	16.7	6.5	3.7	2.8
22.5°	122.3	36.1	11.1	3.7	1.9	0.9
25°	92.6	24.1	7.4	1.9	0.0	0.0
27.5°	66.7	15.8	4.6	0.9	0.0	0.0
30°	44.5	10.2	1.9	0.0	0.0	0.0
32.5°	29.6	6.5	0.9	0.0	0.0	0.0
35°	19.5	3.7	0.9	0.0	0.0	0.0
37.5°	13.0	1.9	0.0	0.0	0.0	0.0
40°	8.3	0.9	0.0	0.0	0.0	0.0
42.5°	5.6	0.9	0.0	0.0	0.0	0.9
45°	2.8	0.9	0.9	0.9	0.9	0.9
47.5°	1.9	0.9	0.9	0.9	0.9	1.9
50°	0.9	0.9	0.9	0.9	1.9	2.8
52.5°	0.9	0.9	0.9	1.9	2.8	3.7
55°	0.9	0.9	1.9	1.9	2.8	3.7
57.5°	1.9	0.9	1.9	2.8	3.7	4.6
60°	1.9	1.9	1.9	2.8	3.7	4.6
62.5°	1.9	1.9	2.8	3.7	4.6	4.6
65°	1.9	1.9	2.8	3.7	4.6	4.6
67.5°	1.9	1.9	2.8	3.7	4.6	4.6
70°	1.9	1.9	2.8	3.7	3.7	4.6
72.5°	1.9	1.9	2.8	2.8	3.7	4.6
75°	1.9	1.9	2.8	2.8	3.7	3.7
77.5°	1.9	1.9	1.9	2.8	2.8	3.7
80°	0.9	1.9	1.9	1.9	2.8	2.8
82.5°	0.9	0.9	0.9	1.9	1.9	1.9
85°	0.9	0.9	0.9	0.9	0.0	0.0
87.5°	0.9	0.9	0.9	0.9	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)