

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: P123749

Luminaire Tested: **EL406927-TLS408WHWB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P123749
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P13996)
Test Lab: INNOVATION CENTER-P1
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: EL406927-TLS408WHWB
Description: HALO 4-INCH RECESSED LED DOWNLIGHT
SQUARE WHITE BAFFLE, SOLITE® LENS AND WHITE RING
Light Source: (1)SURFACE MOUNT LED, 2700K CCT, 90CRI
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 1000 (1 lamp)
Luminaire Lumens: 680.0 lumens
Efficiency: 68.0%
Efficacy: 52.3 lumens/watt
Spacing Criteria (0/90/45): 0.71 / 0.69 / 0.73
Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')
CIE Type: Direct

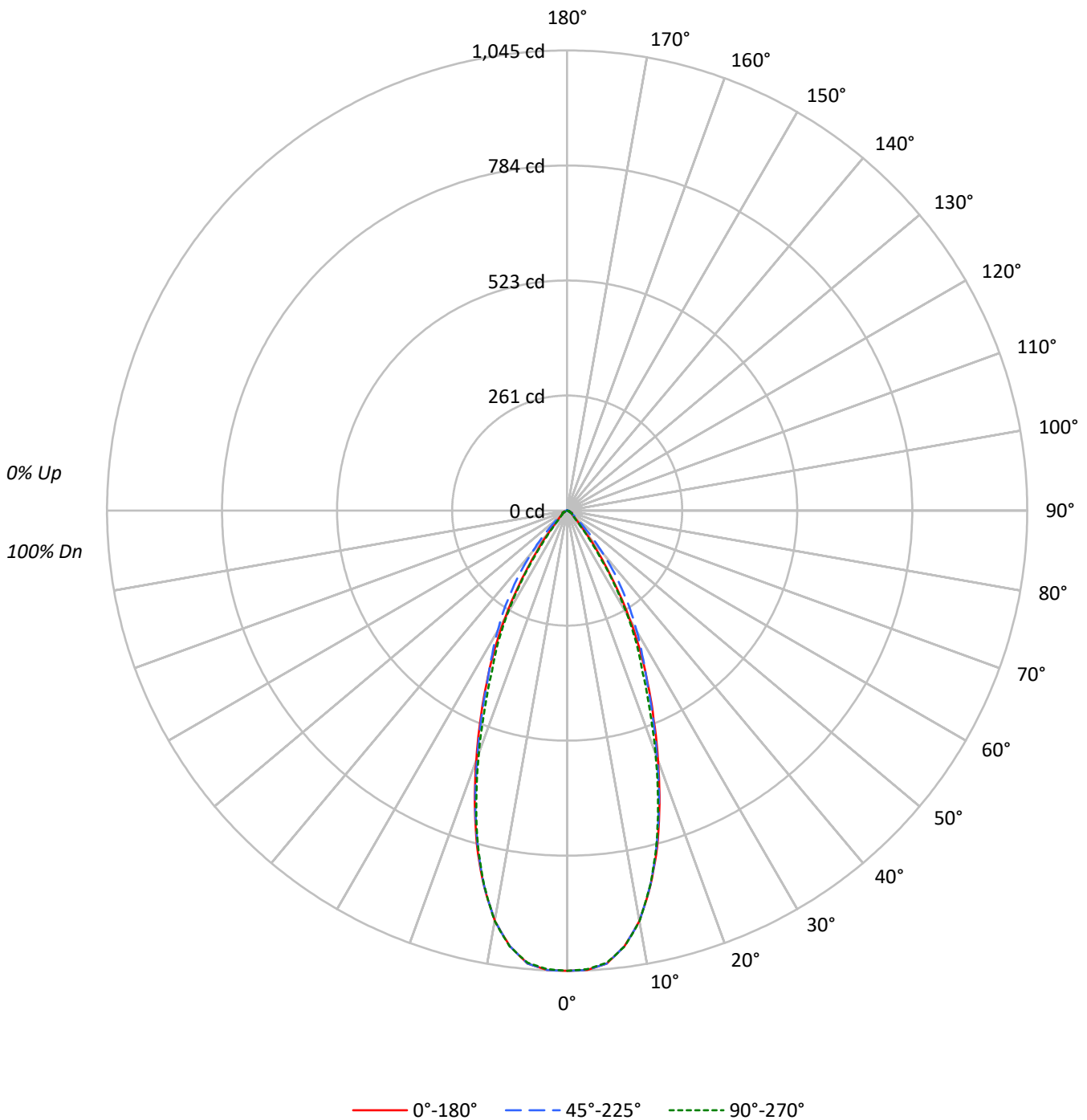
Input Watts (W): 13
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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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	0	
RCR																						
0	81	81	81	81	79	79	79	79	76	76	76	72	72	72	69	69	69	68				
1	77	75	74	72	76	74	72	71	71	70	69	69	68	67	66	66	65	64				
2	73	70	67	65	72	69	67	64	67	65	63	65	63	62	63	62	60	59				
3	70	66	62	60	69	65	62	59	63	60	58	61	59	57	60	58	56	55				
4	67	62	58	55	65	61	57	55	59	56	54	58	55	53	57	55	53	52				
5	63	58	54	51	62	57	54	51	56	53	51	55	52	50	54	52	50	49				
6	60	55	51	48	59	54	50	48	53	50	47	52	49	47	51	49	47	46				
7	58	52	48	45	57	51	47	45	50	47	45	50	47	44	49	46	44	43				
8	55	49	45	42	54	49	45	42	48	44	42	47	44	42	46	44	42	41				
9	53	46	43	40	52	46	42	40	45	42	40	45	42	40	44	42	40	39				
10	50	44	40	38	50	44	40	38	43	40	38	43	40	38	42	40	38	37				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	405014	405014	405014
5°	401621	401621	400882
10°	372190	372190	372584
15°	317004	315439	314677
20°	248823	246019	241565
25°	185175	183080	173503
30°	126269	141080	121929
35°	69491	101753	64004
40°	32981	63028	27063
45°	15454	30908	12823
50°	10550	15855	9404
55°	9188	10539	9188
60°	4495	5270	3797
65°	10728	8069	7152
70°	6571	6571	6571
75°	5839	4342	5839
80°	2232	2232	2232
85°	4446	8448	4446



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	95.7	14.1	9.6
10°-20°	216.3	31.8	21.6
20°-30°	197.1	29.0	19.7
30°-40°	112.1	16.5	11.2
40°-50°	33.5	4.9	3.3
50°-60°	12.4	1.8	1.2
60°-70°	8.0	1.2	0.8
70°-80°	4.2	0.6	0.4
80°-90°	0.8	0.1	0.1
90°-100°	0.0	0.0	0.0
100°-110°	0.0	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°	509.0	74.9	50.9
0°-40°	621.1	91.3	62.1
0°-60°	667.0	98.1	66.7
0°-90°	680.0	100.0	68.0
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°	680.0	100.0	68.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1045	1045	1045	1045	1045	
5°	1032	1033	1032	1032	1031	96
15°	790	789	786	786	784	217
25°	433	434	428	417	406	198
35°	147	176	215	171	135	97
45°	28	38	56	31	23	26
55°	14	15	16	14	14	11
65°	12	10	9	10	8	9
75°	4	4	3	4	4	4
85°	1	0	2	0	1	1
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1045.2	1045.2	1045.2	1045.2	1045.2	1045.2	1045.2	1045.2	1045.2	1045.2	1045.2
2.5°	1044.2	1045.2	1046.2	1045.2	1046.2	1044.2	1045.2	1044.2	1045.2	1044.2	1045.2
5°	1032.5	1030.6	1032.5	1032.5	1033.5	1031.6	1031.6	1030.6	1033.5	1032.5	1032.5
7.5°	997.5	998.5	998.5	997.5	998.5	997.5	999.4	1000.4	1000.4	997.5	998.5
10°	945.9	946.9	946.9	946.9	947.9	946.9	947.9	946.9	946.9	945.9	946.9
12.5°	872.9	872.9	873.9	874.9	872.0	872.0	872.0	872.0	872.0	872.0	872.9
15°	790.2	790.2	791.2	789.2	789.2	789.2	788.3	788.3	788.3	786.3	786.3
17.5°	697.8	697.8	698.7	697.8	697.8	694.8	695.8	695.8	693.9	693.9	691.0
20°	603.4	603.4	603.4	602.4	602.4	601.4	600.4	600.4	599.5	596.6	596.6
22.5°	513.8	514.8	514.8	514.8	513.8	512.9	511.9	509.9	509.0	508.0	506.0
25°	433.1	433.1	435.0	434.0	434.0	433.1	433.1	432.1	431.1	428.2	426.2
27.5°	359.1	360.1	363.0	364.9	366.9	368.8	369.8	369.8	367.9	368.8	366.9
30°	282.2	283.2	287.1	292.0	300.7	304.6	311.4	314.3	315.3	315.3	313.4
32.5°	212.2	214.1	218.0	224.8	233.6	242.3	253.0	261.8	264.7	266.6	265.7
35°	146.9	148.9	154.7	161.5	170.3	181.0	192.7	203.4	211.2	215.1	213.1
37.5°	101.2	100.2	104.1	110.9	119.7	130.4	143.1	155.7	165.4	169.3	165.4
40°	65.2	65.2	68.1	72.0	80.8	89.5	101.2	112.9	122.6	124.6	120.7
42.5°	42.8	43.8	46.7	49.6	54.5	60.3	68.1	77.9	86.6	88.6	82.7
45°	28.2	30.2	31.1	33.1	37.0	39.9	46.7	52.6	55.5	56.4	52.6
47.5°	23.4	24.3	23.4	25.3	26.3	29.2	31.1	36.0	40.9	38.0	36.0
50°	17.5	17.5	18.5	17.5	19.5	20.4	23.4	25.3	25.3	26.3	23.4
52.5°	14.6	14.6	14.6	15.6	15.6	16.5	16.5	17.5	18.5	19.5	16.5
55°	13.6	14.6	13.6	14.6	14.6	14.6	14.6	15.6	15.6	15.6	14.6
57.5°	11.7	12.7	14.6	11.7	12.7	12.7	12.7	11.7	12.7	12.7	12.7
60°	5.8	5.8	7.8	5.8	6.8	5.8	6.8	5.8	6.8	6.8	6.8
62.5°	9.7	9.7	9.7	8.8	9.7	9.7	9.7	10.7	9.7	10.7	8.8
65°	11.7	9.7	9.7	8.8	9.7	9.7	9.7	8.8	8.8	8.8	9.7
67.5°	8.8	6.8	7.8	7.8	6.8	7.8	7.8	6.8	7.8	6.8	6.8
70°	5.8	4.9	4.9	4.9	6.8	5.8	5.8	5.8	5.8	5.8	6.8
72.5°	4.9	4.9	5.8	4.9	5.8	6.8	5.8	5.8	4.9	5.8	4.9
75°	3.9	3.9	3.9	3.9	4.9	3.9	2.9	3.9	2.9	2.9	3.9
77.5°	2.9	2.9	3.9	3.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9
80°	1.0	1.0	1.9	1.0	1.9	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	1.0	1.0	1.9	1.0	1.0	1.0	1.0	1.9	1.0	1.9	1.0
85°	1.0	1.0	1.9	1.0	1.0	0.0	1.9	1.0	1.0	1.9	1.0
87.5°	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
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):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1045.2	1045.2	1045.2	1045.2	1045.2	1045.2	1045.2	1045.2
2.5°	1044.2	1044.2	1044.2	1043.2	1043.2	1044.2	1045.2	1042.3
5°	1031.6	1030.6	1032.5	1031.6	1031.6	1031.6	1030.6	1030.6
7.5°	998.5	996.5	998.5	999.4	999.4	998.5	999.4	998.5
10°	946.9	946.9	946.9	946.9	945.9	946.9	946.9	946.9
12.5°	872.0	872.0	872.0	871.0	872.9	871.0	872.9	871.0
15°	786.3	785.3	786.3	786.3	785.3	785.3	784.4	784.4
17.5°	691.0	689.0	689.0	688.0	688.0	686.1	687.1	686.1
20°	593.6	592.7	590.7	588.8	587.8	585.8	586.8	585.8
22.5°	503.1	498.3	498.3	494.4	491.5	489.5	489.5	489.5
25°	424.3	420.4	418.5	414.6	413.6	410.7	408.7	405.8
27.5°	364.9	361.0	359.1	354.2	350.3	346.4	342.6	341.6
30°	311.4	306.5	299.7	292.9	284.2	277.4	273.5	272.5
32.5°	260.8	252.1	241.3	229.7	217.0	209.2	205.3	202.4
35°	204.4	192.7	178.1	163.5	151.8	143.1	137.2	135.3
37.5°	154.7	139.2	125.5	111.9	100.2	92.5	87.6	85.6
40°	108.0	93.4	79.8	69.1	63.3	55.5	53.5	53.5
42.5°	73.0	60.3	51.6	44.8	39.9	37.0	36.0	35.0
45°	46.7	39.9	33.1	28.2	27.2	25.3	23.4	23.4
47.5°	32.1	27.2	26.3	23.4	19.5	20.4	19.5	19.5
50°	22.4	19.5	18.5	16.5	16.5	15.6	15.6	15.6
52.5°	16.5	14.6	15.6	15.6	13.6	12.7	13.6	12.7
55°	14.6	14.6	14.6	13.6	12.7	13.6	12.7	13.6
57.5°	12.7	12.7	12.7	11.7	12.7	11.7	11.7	11.7
60°	6.8	6.8	5.8	6.8	5.8	4.9	5.8	4.9
62.5°	10.7	8.8	9.7	8.8	9.7	9.7	11.7	10.7
65°	8.8	9.7	9.7	9.7	8.8	8.8	8.8	7.8
67.5°	7.8	5.8	7.8	6.8	7.8	6.8	6.8	7.8
70°	4.9	4.9	5.8	5.8	4.9	6.8	5.8	5.8
72.5°	5.8	5.8	5.8	5.8	4.9	4.9	8.8	5.8
75°	3.9	2.9	3.9	3.9	3.9	3.9	2.9	3.9
77.5°	3.9	2.9	2.9	3.9	2.9	2.9	2.9	3.9
80°	1.9	1.0	1.9	1.9	1.0	1.9	1.0	1.0
82.5°	1.9	1.0	1.0	1.0	1.0	1.9	1.0	1.0
85°	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0
87.5°	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)