

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: P123751

Luminaire Tested: **EL406935-TLS408WHWB**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P123751  
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: EL406935-TLS408WHWB  
Description: HALO 4-INCH RECESSED LED DOWNLIGHT  
SQUARE WHITE BAFFLE, SOLITE® LENS AND WHITE RING  
Light Source: (1)SURFACE MOUNT LED, 3500K CCT, 90CRI  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: 1000 (1 lamp)  
Luminaire Lumens: 750.0 lumens  
Efficiency: 75.0%  
Efficacy: 57.7 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

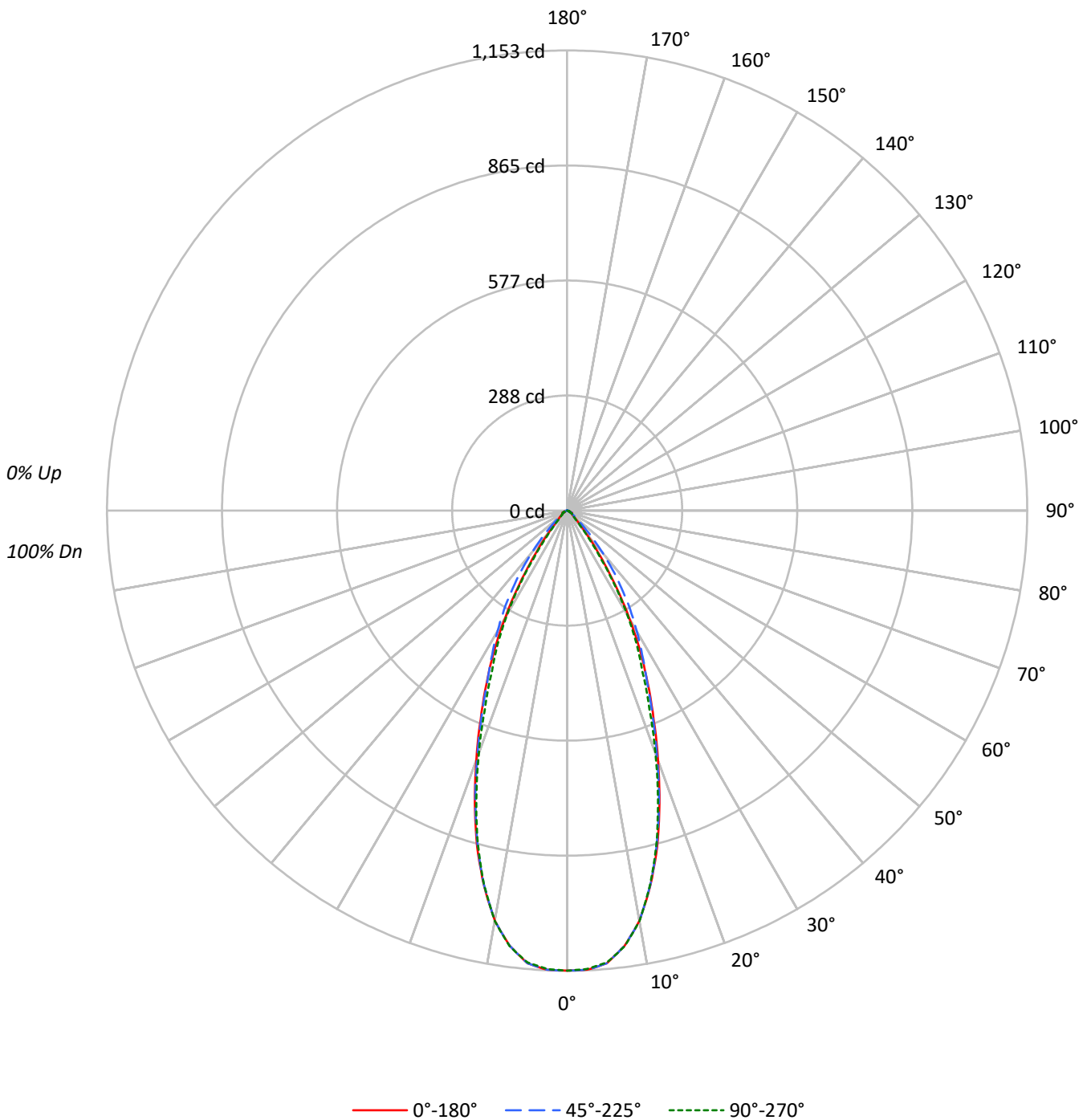
Input Watts (W): 13  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20										
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	89	89	89	89	87	87	87	87	83	83	83	80	80	80	77	77	77	75																				
1	85	83	81	80	83	81	80	78	78	77	76	76	75	74	73	72	71	70																				
2	81	77	74	72	79	76	73	71	74	71	70	71	70	68	69	68	67	65																				
3	77	72	69	66	76	71	68	65	69	67	64	68	65	63	66	64	62	61																				
4	73	68	64	61	72	67	63	60	65	62	60	64	61	59	63	60	58	57																				
5	70	64	60	56	69	63	59	56	62	58	56	61	58	55	59	57	55	54																				
6	67	60	56	53	66	60	56	53	59	55	52	57	54	52	57	54	52	50																				
7	64	57	53	50	63	56	52	49	55	52	49	55	51	49	54	51	49	48																				
8	61	54	50	47	60	54	49	47	53	49	46	52	49	46	51	48	46	45																				
9	58	51	47	44	57	51	47	44	50	46	44	50	46	44	49	46	44	43																				
10	56	49	45	42	55	48	44	42	48	44	42	47	44	42	47	44	41	40																				

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

	0°	45°	90°
0°	446709	446709	446709
5°	442970	442970	442153
10°	410515	410515	410948
15°	349659	347934	347051
20°	274431	271338	266472
25°	204202	201936	191375
30°	139290	155622	134457
35°	76681	112207	70579
40°	36370	69503	29845
45°	17043	34141	14139
50°	11635	17482	10369
55°	10134	11620	10134
60°	4960	5812	4185
65°	11828	8894	7885
70°	7251	7251	7251
75°	6438	4791	6438
80°	2455	2455	2455
85°	4891	9337	4891



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture	% Lamp
0°-10°	105.6	14.1	10.6
10°-20°	238.5	31.8	23.9
20°-30°	217.3	29.0	21.7
30°-40°	123.6	16.5	12.4
40°-50°	36.9	4.9	3.7
50°-60°	13.6	1.8	1.4
60°-70°	8.8	1.2	0.9
70°-80°	4.7	0.6	0.5
80°-90°	0.9	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°	561.4	74.9	56.1
0°-40°	685.1	91.3	68.5
0°-60°	735.6	98.1	73.6
0°-90°	750.0	100.0	75.0
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°	750.0	100.0	75.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1153	1153	1153	1153	1153	
5°	1139	1139	1139	1138	1137	106
15°	872	870	867	867	865	240
25°	478	478	472	459	448	218
35°	162	194	237	188	149	107
45°	31	42	62	34	26	28
55°	15	16	17	16	15	13
65°	13	11	10	11	9	10
75°	4	5	3	4	4	4
85°	1	1	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°	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8
2.5°	1151.7	1152.8	1153.9	1152.8	1153.9	1151.7	1152.8	1151.7	1152.8	1151.7	1152.8
5°	1138.8	1136.7	1138.8	1138.8	1139.9	1137.8	1137.8	1136.7	1139.9	1138.8	1138.8
7.5°	1100.2	1101.3	1101.3	1100.2	1101.3	1100.2	1102.3	1103.4	1103.4	1100.2	1101.3
10°	1043.3	1044.4	1044.4	1044.4	1045.4	1044.4	1045.4	1044.4	1044.4	1043.3	1044.4
12.5°	962.8	962.8	963.9	964.9	961.7	961.7	961.7	961.7	961.7	961.7	962.8
15°	871.6	871.6	872.6	870.5	870.5	870.5	869.4	869.4	869.4	867.3	867.3
17.5°	769.6	769.6	770.7	769.6	769.6	766.4	767.4	767.4	765.3	765.3	762.1
20°	665.5	665.5	665.5	664.4	664.4	663.3	662.3	662.3	661.2	658.0	658.0
22.5°	566.7	567.8	567.8	567.8	566.7	565.7	564.6	562.4	561.4	560.3	558.1
25°	477.6	477.6	479.8	478.7	478.7	477.6	477.6	476.6	475.5	472.3	470.1
27.5°	396.1	397.1	400.4	402.5	404.7	406.8	407.9	407.9	405.7	406.8	404.7
30°	311.3	312.3	316.6	322.0	331.7	336.0	343.5	346.7	347.8	347.8	345.6
32.5°	234.0	236.1	240.4	247.9	257.6	267.3	279.1	288.7	292.0	294.1	293.0
35°	162.1	164.2	170.7	178.2	187.8	199.6	212.5	224.3	232.9	237.2	235.1
37.5°	111.6	110.6	114.8	122.4	132.0	143.8	157.8	171.7	182.5	186.8	182.5
40°	71.9	71.9	75.1	79.4	89.1	98.7	111.6	124.5	135.2	137.4	133.1
42.5°	47.2	48.3	51.5	54.7	60.1	66.5	75.1	85.9	95.5	97.7	91.2
45°	31.1	33.3	34.3	36.5	40.8	44.0	51.5	58.0	61.2	62.3	58.0
47.5°	25.8	26.8	25.8	27.9	29.0	32.2	34.3	39.7	45.1	41.9	39.7
50°	19.3	19.3	20.4	19.3	21.5	22.5	25.8	27.9	27.9	29.0	25.8
52.5°	16.1	16.1	16.1	17.2	17.2	18.2	18.2	19.3	20.4	21.5	18.2
55°	15.0	16.1	15.0	16.1	16.1	16.1	16.1	17.2	17.2	17.2	16.1
57.5°	12.9	14.0	16.1	12.9	14.0	14.0	14.0	12.9	14.0	14.0	14.0
60°	6.4	6.4	8.6	6.4	7.5	6.4	7.5	6.4	7.5	7.5	7.5
62.5°	10.7	10.7	10.7	9.7	10.7	10.7	10.7	11.8	10.7	11.8	9.7
65°	12.9	10.7	10.7	9.7	10.7	10.7	10.7	9.7	9.7	9.7	10.7
67.5°	9.7	7.5	8.6	8.6	7.5	8.6	8.6	7.5	8.6	7.5	7.5
70°	6.4	5.4	5.4	5.4	7.5	6.4	6.4	6.4	6.4	6.4	7.5
72.5°	5.4	5.4	6.4	5.4	6.4	7.5	6.4	6.4	5.4	6.4	5.4
75°	4.3	4.3	4.3	4.3	5.4	4.3	3.2	4.3	3.2	3.2	4.3
77.5°	3.2	3.2	4.3	4.3	3.2	3.2	3.2	3.2	3.2	3.2	4.3
80°	1.1	1.1	2.1	1.1	2.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	1.1	1.1	2.1	1.1	1.1	1.1	1.1	2.1	1.1	2.1	1.1
85°	1.1	1.1	2.1	1.1	1.1	0.0	2.1	1.1	1.1	2.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.0	1.1	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°	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8	1152.8
2.5°	1151.7	1151.7	1151.7	1150.6	1150.6	1151.7	1152.8	1149.6
5°	1137.8	1136.7	1138.8	1137.8	1137.8	1137.8	1136.7	1136.7
7.5°	1101.3	1099.1	1101.3	1102.3	1102.3	1101.3	1102.3	1101.3
10°	1044.4	1044.4	1044.4	1044.4	1043.3	1044.4	1044.4	1044.4
12.5°	961.7	961.7	961.7	960.6	962.8	960.6	962.8	960.6
15°	867.3	866.2	867.3	867.3	866.2	866.2	865.1	865.1
17.5°	762.1	759.9	759.9	758.9	758.9	756.7	757.8	756.7
20°	654.7	653.7	651.5	649.4	648.3	646.2	647.2	646.2
22.5°	554.9	549.6	549.6	545.3	542.0	539.9	539.9	539.9
25°	468.0	463.7	461.5	457.2	456.2	453.0	450.8	447.6
27.5°	402.5	398.2	396.1	390.7	386.4	382.1	377.8	376.7
30°	343.5	338.1	330.6	323.1	313.4	305.9	301.6	300.5
32.5°	287.7	278.0	266.2	253.3	239.4	230.8	226.5	223.3
35°	225.4	212.5	196.4	180.3	167.4	157.8	151.3	149.2
37.5°	170.7	153.5	138.5	123.4	110.6	102.0	96.6	94.5
40°	119.1	103.0	88.0	76.2	69.8	61.2	59.0	59.0
42.5°	80.5	66.5	56.9	49.4	44.0	40.8	39.7	38.6
45°	51.5	44.0	36.5	31.1	30.1	27.9	25.8	25.8
47.5°	35.4	30.1	29.0	25.8	21.5	22.5	21.5	21.5
50°	24.7	21.5	20.4	18.2	18.2	17.2	17.2	17.2
52.5°	18.2	16.1	17.2	17.2	15.0	14.0	15.0	14.0
55°	16.1	16.1	16.1	15.0	14.0	15.0	14.0	15.0
57.5°	14.0	14.0	14.0	12.9	14.0	12.9	12.9	12.9
60°	7.5	7.5	6.4	7.5	6.4	5.4	6.4	5.4
62.5°	11.8	9.7	10.7	9.7	10.7	10.7	12.9	11.8
65°	9.7	10.7	10.7	10.7	9.7	9.7	9.7	8.6
67.5°	8.6	6.4	8.6	7.5	8.6	7.5	7.5	8.6
70°	5.4	5.4	6.4	6.4	5.4	7.5	6.4	6.4
72.5°	6.4	6.4	6.4	6.4	5.4	5.4	9.7	6.4
75°	4.3	3.2	4.3	4.3	4.3	4.3	3.2	4.3
77.5°	4.3	3.2	3.2	4.3	3.2	3.2	3.2	4.3
80°	2.1	1.1	2.1	2.1	1.1	2.1	1.1	1.1
82.5°	2.1	1.1	1.1	1.1	1.1	2.1	1.1	1.1
85°	1.1	1.1	0.0	0.0	0.0	0.0	1.1	1.1
87.5°	0.0	0.0	1.1	0.0	0.0	0.0	1.1	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)