

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: P123738

Luminaire Tested: **EL406930-TLS408SNBB**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P123738  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P13993)  
Test Lab: INNOVATION CENTER-P1  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: EL406930-TLS408SNBB  
Description: HALO 4-INCH RECESSED LED DOWNLIGHT  
SQUARE BLACK BAFFLE, SOLITE® LENS AND SATIN NICKEL RING  
Light Source: (1)SURFACE MOUNT LED, 3000K CCT, 90CRI  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 720.0 lumens  
Efficiency: N/A  
Efficacy: 55.4 lumens/watt  
Spacing Criteria (0/90/45): 0.72 / 0.71 / 0.72  
Luminous Opening: Rectangular (W 0.21' x L: 0.21' x H: 0')  
CIE Type: Direct

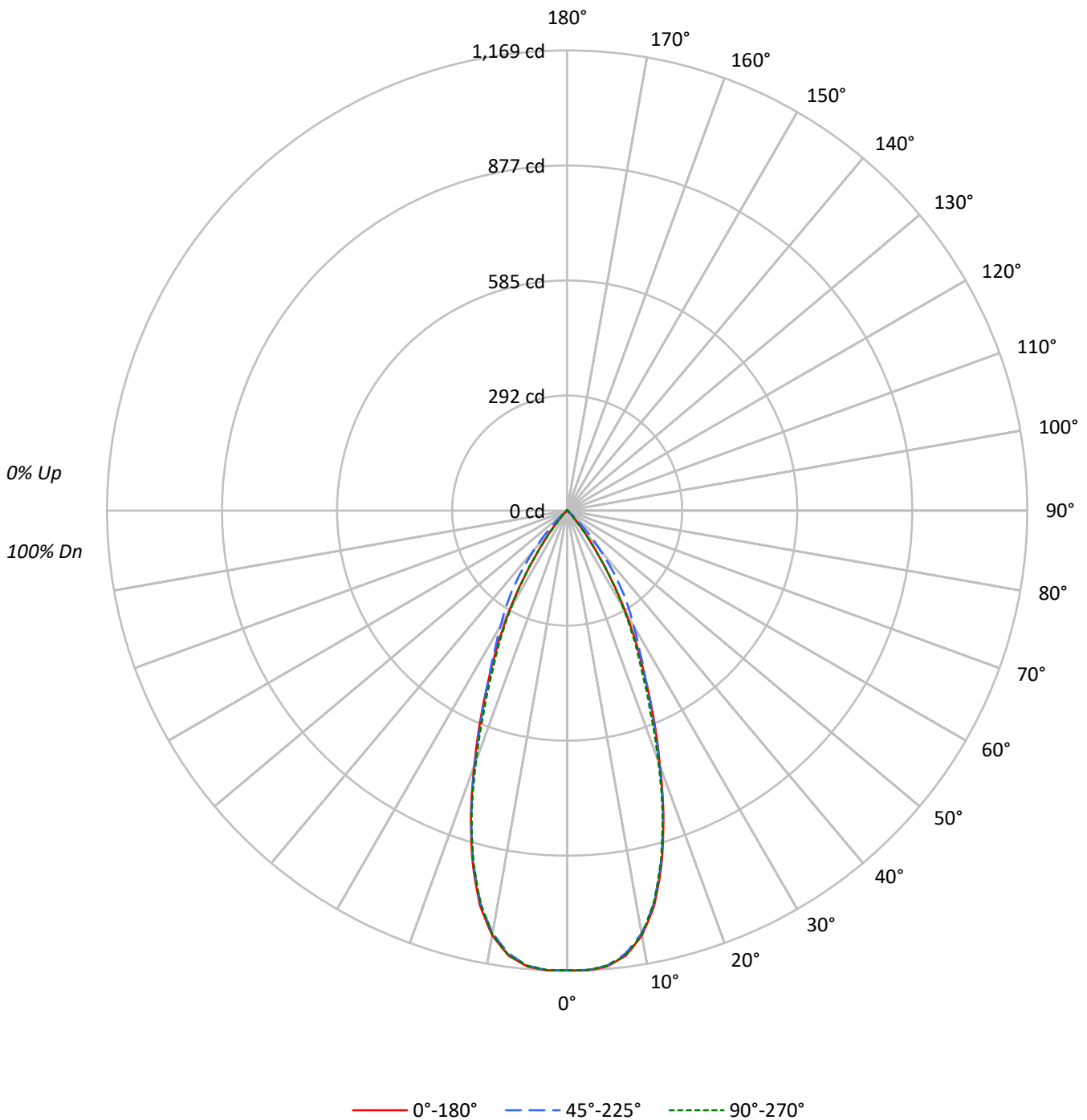
Input Watts (W): 13  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20				20				20				20				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	114	111	109	107	112	109	107	105	105	104	102	102	100	99	98	97	96	95
2	109	105	101	98	107	103	99	97	100	97	95	97	94	93	94	92	91	89
3	104	98	94	90	102	97	93	89	94	91	88	92	89	87	90	87	85	84
4	99	93	88	84	98	92	87	83	89	85	82	87	84	81	86	83	80	79
5	95	88	82	78	94	87	82	78	85	81	77	83	80	77	82	79	76	75
6	91	83	77	74	90	82	77	73	81	76	73	79	75	72	78	75	72	71
7	87	79	73	69	86	78	73	69	77	72	69	76	71	68	74	71	68	67
8	83	75	69	65	82	74	69	65	73	68	65	72	68	65	71	67	65	63
9	80	71	66	62	79	71	65	62	70	65	62	69	65	62	68	64	61	60
10	77	68	62	59	76	67	62	59	67	62	59	66	62	59	65	61	58	57

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

	0°	45°	90°
0°	289666	289666	289666
5°	289428	288905	288905
10°	275902	274542	275348
15°	238110	236723	236467
20°	181813	181232	178699
25°	128474	128775	122645
30°	83848	96649	81701
35°	42234	71571	41901
40°	14827	42410	13791
45°	5962	16800	4840
50°	2045	5324	2469
55°	908	908	908
60°	546	546	1042
65°	646	646	646
70°	1523	798	798
75°	1054	1054	2012
80°	0	0	0
85°	0	0	3130



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	108.6	15.1
10°-20°	252.0	35.0
20°-30°	216.6	30.1
30°-40°	115.4	16.0
40°-50°	24.4	3.4
50°-60°	1.8	0.3
60°-70°	0.7	0.1
70°-80°	0.4	0.1
80°-90°	0.0	0.0
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°	577.2	80.2
0°-40°	692.7	96.2
0°-60°	718.9	99.8
0°-90°	720.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	720.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1168	1168	1168	1168	1168	
5°	1163	1162	1160	1162	1160	109
15°	927	924	922	922	921	253
25°	470	471	471	456	448	216
35°	140	179	236	178	138	92
45°	17	22	48	21	14	14
55°	2	2	2	2	2	1
65°	1	1	1	1	1	1
75°	1	1	1	1	2	1
85°	0	0	0	0	1	0
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°	1168.0	1168.0	1168.0	1168.0	1168.0	1168.0	1168.0	1168.0	1168.0	1168.0	1168.0
2.5°	1169.0	1169.0	1170.1	1170.1	1169.0	1168.0	1170.1	1168.0	1168.0	1168.0	1168.0
5°	1162.6	1161.6	1162.6	1161.6	1160.5	1163.7	1162.6	1161.6	1159.5	1160.5	1161.6
7.5°	1140.3	1138.2	1138.2	1137.1	1137.1	1136.0	1137.1	1135.0	1136.0	1135.0	1136.0
10°	1095.6	1094.5	1094.5	1093.4	1093.4	1091.3	1092.4	1092.4	1089.2	1090.2	1090.2
12.5°	1025.3	1022.1	1022.1	1022.1	1022.1	1021.0	1021.0	1021.0	1018.9	1020.0	1020.0
15°	927.4	925.2	924.2	926.3	924.2	923.1	923.1	924.2	924.2	922.0	924.2
17.5°	813.4	812.4	813.4	812.4	812.4	811.3	811.3	810.2	810.2	810.2	809.2
20°	688.9	691.0	689.9	688.9	688.9	688.9	689.9	687.8	687.8	686.7	684.6
22.5°	574.9	571.7	570.7	572.8	571.7	571.7	571.7	570.7	569.6	568.5	566.4
25°	469.5	468.5	467.4	469.5	469.5	471.7	472.7	473.8	472.7	470.6	468.5
27.5°	379.0	379.0	381.2	385.4	388.6	392.9	395.0	396.1	397.1	396.1	391.8
30°	292.8	296.0	300.2	306.6	314.1	323.7	330.1	334.3	336.4	337.5	337.5
32.5°	211.9	212.9	220.4	230.0	240.6	255.5	269.4	280.0	285.3	287.5	287.5
35°	139.5	141.6	146.9	157.6	171.4	187.4	203.4	221.5	234.2	236.4	232.1
37.5°	84.1	85.2	91.6	100.1	110.7	126.7	145.9	162.9	177.8	183.1	178.9
40°	45.8	46.8	51.1	56.4	63.9	76.7	93.7	109.7	125.6	131.0	125.6
42.5°	26.6	26.6	28.7	30.9	36.2	43.7	55.4	68.1	80.9	86.2	79.9
45°	17.0	14.9	13.8	17.0	21.3	23.4	30.9	38.3	45.8	47.9	44.7
47.5°	7.5	8.5	10.6	10.6	11.7	13.8	17.0	21.3	24.5	26.6	22.4
50°	5.3	6.4	6.4	6.4	6.4	8.5	8.5	11.7	12.8	13.8	12.8
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
55°	2.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1	3.2	2.1	3.2
57.5°	1.1	1.1	1.1	3.2	1.1	2.1	1.1	2.1	2.1	2.1	1.1
60°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
62.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65°	1.1	1.1	1.1	1.1	1.1	1.1	2.1	1.1	1.1	1.1	1.1
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	2.1	2.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1	1.1	3.2
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	1.1	0.0	1.1	0.0	0.0	1.1	0.0	1.1	0.0	1.1	1.1
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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°	1168.0	1168.0	1168.0	1168.0	1168.0	1168.0	1168.0	1168.0
2.5°	1166.9	1168.0	1165.8	1168.0	1166.9	1166.9	1166.9	1168.0
5°	1160.5	1160.5	1160.5	1162.6	1160.5	1161.6	1159.5	1160.5
7.5°	1135.0	1136.0	1136.0	1138.2	1138.2	1137.1	1138.2	1139.2
10°	1089.2	1089.2	1089.2	1091.3	1090.2	1091.3	1093.4	1093.4
12.5°	1018.9	1020.0	1017.8	1018.9	1016.8	1018.9	1017.8	1018.9
15°	922.0	922.0	921.0	922.0	921.0	921.0	919.9	921.0
17.5°	807.0	807.0	807.0	806.0	804.9	806.0	804.9	807.0
20°	683.5	681.4	679.3	681.4	679.3	677.1	675.0	677.1
22.5°	563.2	561.1	557.9	556.8	554.7	552.6	552.6	552.6
25°	465.3	462.1	456.8	455.7	452.5	450.4	450.4	448.2
27.5°	391.8	387.5	384.4	380.1	374.8	370.5	366.3	366.3
30°	334.3	329.0	320.5	310.9	301.3	292.8	288.5	285.3
32.5°	280.0	269.4	255.5	240.6	227.8	217.2	209.7	209.7
35°	221.5	206.6	186.3	170.4	154.4	144.8	139.5	138.4
37.5°	162.9	144.8	125.6	108.6	95.8	87.3	82.0	80.9
40°	109.7	91.6	74.5	60.7	52.2	46.8	43.7	42.6
42.5°	68.1	52.2	41.5	34.1	31.9	25.6	23.4	24.5
45°	36.2	28.7	22.4	19.2	14.9	14.9	13.8	13.8
47.5°	19.2	16.0	12.8	9.6	8.5	8.5	7.5	9.6
50°	10.6	8.5	7.5	5.3	5.3	5.3	5.3	6.4
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55°	2.1	2.1	1.1	2.1	1.1	2.1	1.1	2.1
57.5°	1.1	3.2	1.1	1.1	1.1	1.1	1.1	3.2
60°	1.1	2.1	1.1	1.1	0.0	1.1	1.1	2.1
62.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65°	2.1	2.1	1.1	1.1	1.1	0.0	2.1	1.1
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	1.1	2.1	3.2	3.2	1.1	2.1	1.1	1.1
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	1.1	1.1	0.0	1.1	1.1	2.1
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
87.5°	0.0	0.0	0.0	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

(END OF REPORT)