

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: P123748

Luminaire Tested: **EL406940-TLS408WHBB**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P123748  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P13995)  
Test Lab: INNOVATION CENTER-P1  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: EL406940-TLS408WHBB  
Description: HALO 4-INCH RECESSED LED DOWNLIGHT  
SQUARE BLACK BAFFLE, SOLITE® LENS AND WHITE RING  
Light Source: (1)SURFACE MOUNT LED, 4000K CCT, 90CRI  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 790.0 lumens  
Efficiency: N/A  
Efficacy: 60.8 lumens/watt  
Spacing Criteria (0/90/45): 0.69 / 0.69 / 0.71  
Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')  
CIE Type: Direct

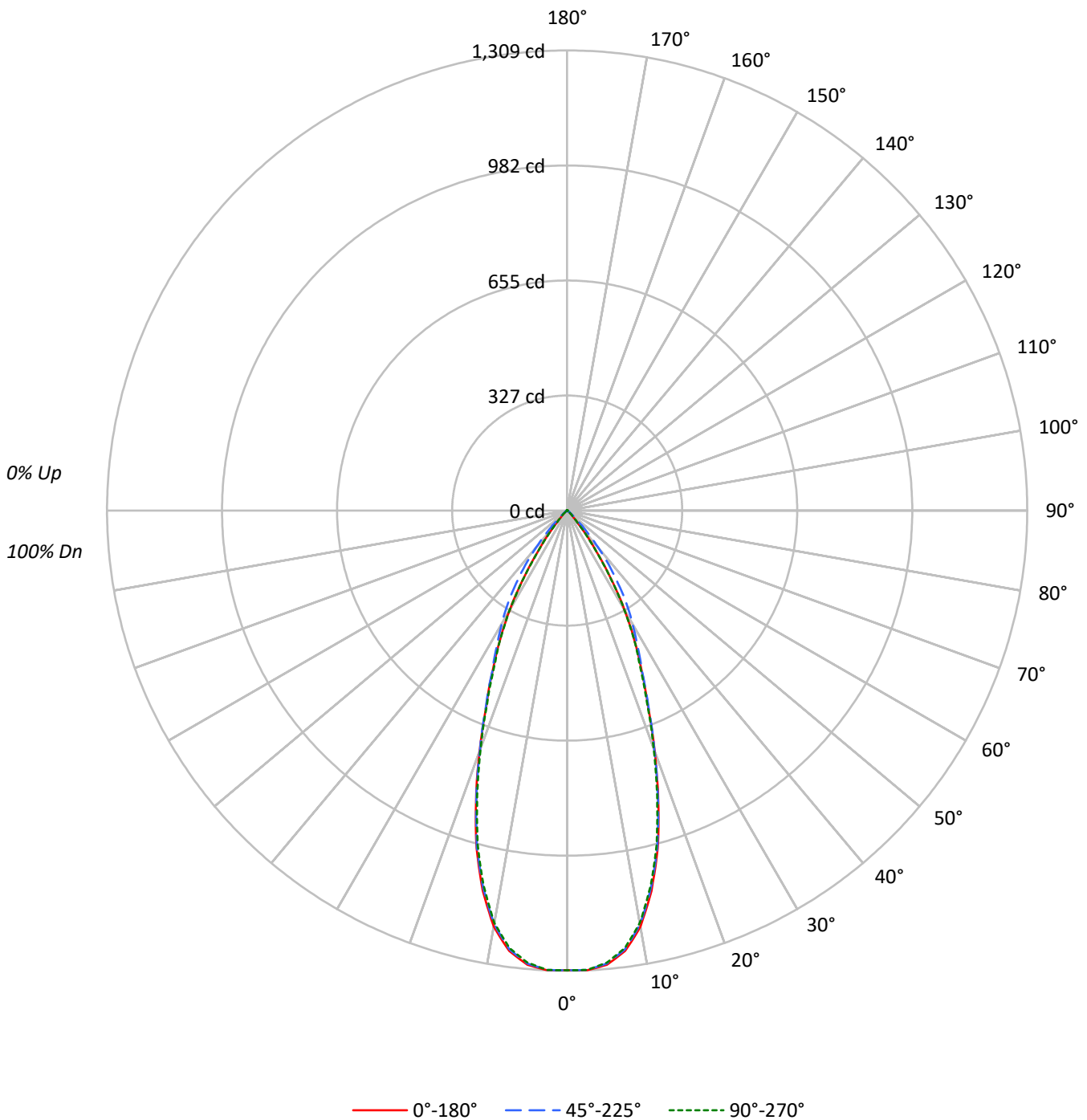
Input Watts (W): 13  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

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

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

	0°	45°	90°
0°	506733	506733	506733
5°	504507	503106	502173
10°	472881	470087	468671
15°	399083	397639	394309
20°	299792	299297	296369
25°	214164	215703	210102
30°	146404	166629	145867
35°	74884	119350	73181
40°	28277	69200	26506
45°	10412	28716	11070
50°	5004	10067	4280
55°	3243	3986	2432
60°	1860	5502	2790
65°	0	0	0
70°	2719	1360	1360
75°	0	0	0
80°	2678	2678	0
85°	0	0	5335



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	120.5	15.2
10°-20°	270.2	34.2
20°-30°	233.6	29.6
30°-40°	128.9	16.3
40°-50°	29.1	3.7
50°-60°	5.4	0.7
60°-70°	1.4	0.2
70°-80°	0.3	0.0
80°-90°	0.7	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°	624.3	79.0
0°-40°	753.2	95.3
0°-60°	787.6	99.7
0°-90°	790.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	790.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1308	1308	1308	1308	1308	
5°	1297	1296	1293	1293	1291	121
15°	995	994	991	987	983	272
25°	501	502	504	497	491	231
35°	158	199	252	199	155	105
45°	19	27	52	28	20	17
55°	5	5	6	5	4	4
65°	0	0	0	0	0	1
75°	0	0	0	0	0	0
85°	0	0	0	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°	1307.7	1307.7	1307.7	1307.7	1307.7	1307.7	1307.7	1307.7	1307.7	1307.7	1307.7
2.5°	1308.9	1308.9	1308.9	1310.1	1310.1	1310.1	1308.9	1307.7	1308.9	1307.7	1307.7
5°	1297.0	1297.0	1298.2	1297.0	1297.0	1295.8	1294.6	1294.6	1293.4	1293.4	1292.2
7.5°	1263.7	1263.7	1263.7	1263.7	1264.9	1261.3	1257.7	1260.1	1261.3	1258.9	1260.1
10°	1201.8	1200.6	1200.6	1201.8	1199.4	1200.6	1198.2	1195.8	1194.7	1194.7	1194.7
12.5°	1107.8	1107.8	1106.6	1105.4	1105.4	1104.2	1103.0	1103.0	1101.8	1100.7	1099.5
15°	994.8	993.6	994.8	993.6	993.6	993.6	992.4	991.2	991.2	991.2	988.8
17.5°	862.7	860.3	862.7	860.3	861.5	861.5	861.5	860.3	860.3	859.1	859.1
20°	727.0	725.8	727.0	727.0	727.0	728.2	727.0	727.0	728.2	725.8	724.6
22.5°	600.9	600.9	600.9	602.1	603.3	604.5	605.7	605.7	605.7	604.5	603.3
25°	500.9	497.4	498.6	498.6	502.1	502.1	503.3	503.3	505.7	504.5	503.3
27.5°	412.9	414.1	414.1	421.2	424.8	429.6	430.7	431.9	431.9	431.9	430.7
30°	327.2	329.6	332.0	340.3	348.6	355.8	364.1	370.1	371.2	372.4	371.2
32.5°	240.4	241.5	248.7	258.2	270.1	283.2	296.3	305.8	314.1	315.3	311.8
35°	158.3	159.4	167.8	177.3	191.6	207.0	223.7	239.2	249.9	252.3	249.9
37.5°	101.1	102.3	107.1	116.6	128.5	144.0	164.2	180.9	191.6	196.3	190.4
40°	55.9	57.1	59.5	69.0	77.3	89.2	104.7	121.4	133.3	136.8	133.3
42.5°	29.7	32.1	33.3	36.9	42.8	51.2	61.9	73.8	83.3	88.1	84.5
45°	19.0	19.0	20.2	22.6	25.0	29.7	35.7	44.0	48.8	52.4	51.2
47.5°	11.9	11.9	14.3	14.3	16.7	17.8	22.6	26.2	27.4	28.6	28.6
50°	8.3	7.1	8.3	8.3	9.5	9.5	11.9	14.3	14.3	16.7	15.5
52.5°	5.9	7.1	5.9	7.1	7.1	8.3	7.1	8.3	9.5	10.7	10.7
55°	4.8	4.8	4.8	5.9	4.8	4.8	7.1	4.8	5.9	5.9	7.1
57.5°	3.6	3.6	2.4	2.4	3.6	2.4	4.8	2.4	3.6	3.6	3.6
60°	2.4	2.4	3.6	3.6	2.4	3.6	2.4	2.4	2.4	7.1	3.6
62.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.6	2.4	2.4	3.6
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	0.0	1.2	1.2	1.2	0.0	1.2	1.2	1.2	1.2	1.2	1.2
70°	2.4	1.2	0.0	0.0	0.0	1.2	1.2	1.2	0.0	1.2	1.2
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0
75°	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0
80°	1.2	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	2.4	1.2	1.2	0.0	2.4	1.2	1.2	1.2	1.2	1.2	1.2
85°	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	1.2	0.0	1.2	1.2	0.0	1.2	1.2	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°	1307.7	1307.7	1307.7	1307.7	1307.7	1307.7	1307.7	1307.7
2.5°	1306.5	1307.7	1307.7	1306.5	1308.9	1306.5	1307.7	1307.7
5°	1292.2	1293.4	1293.4	1292.2	1292.2	1292.2	1292.2	1291.0
7.5°	1257.7	1257.7	1256.5	1255.3	1258.9	1256.5	1255.3	1255.3
10°	1194.7	1194.7	1193.5	1193.5	1193.5	1191.1	1191.1	1191.1
12.5°	1101.8	1103.0	1099.5	1098.3	1098.3	1098.3	1098.3	1094.7
15°	992.4	990.0	987.6	986.4	985.2	985.2	985.2	982.9
17.5°	859.1	857.9	855.5	853.2	852.0	852.0	850.8	850.8
20°	724.6	722.3	721.1	721.1	718.7	717.5	716.3	718.7
22.5°	603.3	602.1	599.7	596.1	596.1	594.9	593.8	594.9
25°	503.3	500.9	498.6	496.2	495.0	493.8	491.4	491.4
27.5°	430.7	428.4	426.0	422.4	417.7	414.1	411.7	410.5
30°	370.1	364.1	355.8	347.5	339.1	330.8	327.2	326.0
32.5°	305.8	297.5	284.4	271.3	257.0	247.5	240.4	238.0
35°	238.0	224.9	207.0	191.6	176.1	165.4	158.3	154.7
37.5°	179.7	163.0	145.2	128.5	114.2	104.7	98.8	96.4
40°	122.6	107.1	90.4	76.2	67.8	59.5	57.1	52.4
42.5°	76.2	63.1	51.2	41.6	36.9	32.1	32.1	29.7
45°	46.4	38.1	30.9	25.0	22.6	20.2	19.0	20.2
47.5°	27.4	21.4	20.2	16.7	15.5	13.1	13.1	15.5
50°	14.3	11.9	9.5	9.5	9.5	8.3	8.3	7.1
52.5°	9.5	10.7	8.3	8.3	9.5	7.1	5.9	5.9
55°	5.9	5.9	4.8	5.9	4.8	4.8	4.8	3.6
57.5°	2.4	3.6	3.6	4.8	5.9	5.9	3.6	2.4
60°	2.4	3.6	2.4	3.6	3.6	3.6	3.6	3.6
62.5°	1.2	2.4	2.4	3.6	3.6	1.2	2.4	2.4
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	1.2	1.2	2.4	1.2	2.4	1.2	1.2	1.2
70°	0.0	0.0	2.4	0.0	0.0	1.2	0.0	1.2
72.5°	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0
82.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
85°	0.0	1.2	0.0	0.0	0.0	0.0	0.0	1.2
87.5°	0.0	1.2	1.2	1.2	1.2	1.2	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)