

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: P123747

Luminaire Tested: **EL406935-TLS408WHBB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P123747
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: EL406935-TLS408WHBB
Description: HALO 4-INCH RECESSED LED DOWNLIGHT
SQUARE BLACK BAFFLE, SOLITE® LENS AND WHITE RING
Light Source: (1)SURFACE MOUNT LED, 3500K 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): 0.69 / 0.69 / 0.71
Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')
CIE Type: Direct

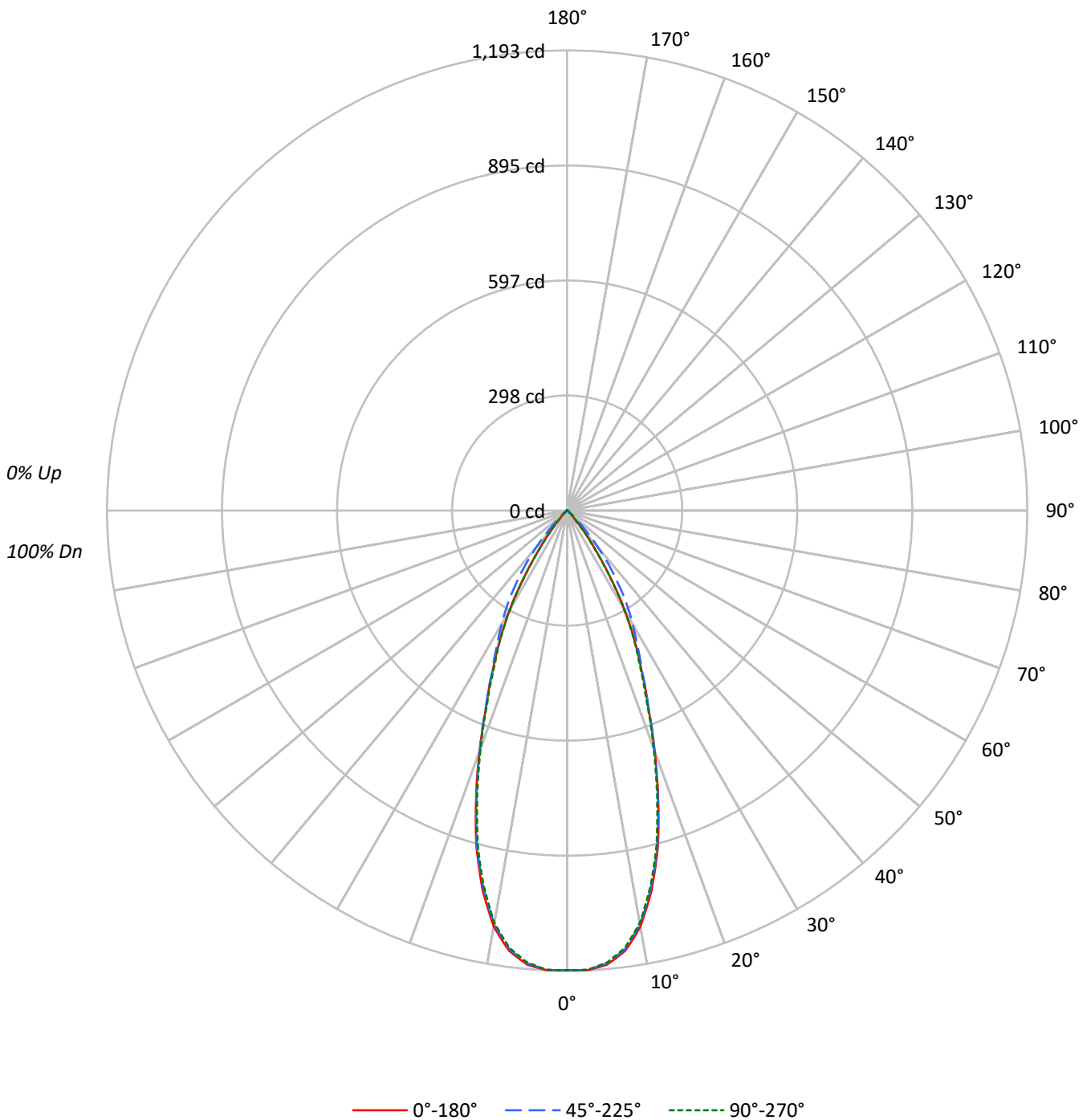
Input Watts (W): 13
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	77	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°	461822	461822	461822
5°	459813	458529	457673
10°	430976	428418	427119
15°	363700	362416	359367
20°	273235	272782	270101
25°	195223	196591	191503
30°	133428	151863	132936
35°	68214	108754	66700
40°	25798	63079	24129
45°	9535	26140	10083
50°	4582	9163	3918
55°	2905	3648	2229
60°	1705	5037	2557
65°	0	0	0
70°	2493	1246	1246
75°	0	0	0
80°	2455	2455	0
85°	0	0	4891



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	109.8	15.2
10°-20°	246.3	34.2
20°-30°	212.9	29.6
30°-40°	117.5	16.3
40°-50°	26.5	3.7
50°-60°	4.9	0.7
60°-70°	1.3	0.2
70°-80°	0.3	0.0
80°-90°	0.6	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°	569.0	79.0
0°-40°	686.5	95.3
0°-60°	717.8	99.7
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°	1192	1192	1192	1192	1192	
5°	1182	1182	1179	1178	1177	110
15°	907	906	903	900	896	247
25°	457	458	460	453	448	211
35°	144	182	230	182	141	96
45°	17	25	48	26	18	16
55°	4	4	5	5	3	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°	1191.8	1191.8	1191.8	1191.8	1191.8	1191.8	1191.8	1191.8	1191.8	1191.8	1191.8
2.5°	1192.9	1192.9	1192.9	1194.0	1194.0	1194.0	1192.9	1191.8	1192.9	1191.8	1191.8
5°	1182.1	1182.1	1183.2	1182.1	1182.1	1181.0	1179.9	1179.9	1178.8	1178.8	1177.7
7.5°	1151.7	1151.7	1151.7	1151.7	1152.8	1149.5	1146.3	1148.4	1149.5	1147.4	1148.4
10°	1095.3	1094.2	1094.2	1095.3	1093.1	1094.2	1092.1	1089.9	1088.8	1088.8	1088.8
12.5°	1009.6	1009.6	1008.6	1007.5	1007.5	1006.4	1005.3	1005.3	1004.2	1003.1	1002.0
15°	906.6	905.5	906.6	905.5	905.5	905.5	904.4	903.4	903.4	903.4	901.2
17.5°	786.2	784.1	786.2	784.1	785.2	785.2	785.2	784.1	784.1	783.0	783.0
20°	662.6	661.5	662.6	662.6	662.6	663.7	662.6	662.6	663.7	661.5	660.4
22.5°	547.7	547.7	547.7	548.7	549.8	550.9	552.0	552.0	552.0	550.9	549.8
25°	456.6	453.3	454.4	454.4	457.6	457.6	458.7	458.7	460.9	459.8	458.7
27.5°	376.3	377.4	377.4	383.9	387.2	391.5	392.6	393.7	393.7	393.7	392.6
30°	298.2	300.4	302.6	310.2	317.7	324.3	331.8	337.3	338.4	339.4	338.4
32.5°	219.1	220.1	226.7	235.3	246.2	258.1	270.0	278.7	286.3	287.4	284.1
35°	144.2	145.3	152.9	161.6	174.6	188.7	203.9	218.0	227.7	229.9	227.7
37.5°	92.2	93.3	97.6	106.3	117.1	131.2	149.7	164.8	174.6	178.9	173.5
40°	51.0	52.1	54.2	62.9	70.5	81.3	95.4	110.6	121.5	124.7	121.5
42.5°	27.1	29.3	30.4	33.6	39.0	46.6	56.4	67.2	75.9	80.3	77.0
45°	17.4	17.4	18.4	20.6	22.8	27.1	32.5	40.1	44.5	47.7	46.6
47.5°	10.8	10.8	13.0	13.0	15.2	16.3	20.6	23.9	24.9	26.0	26.0
50°	7.6	6.5	7.6	7.6	8.7	8.7	10.8	13.0	13.0	15.2	14.1
52.5°	5.4	6.5	5.4	6.5	6.5	7.6	6.5	7.6	8.7	9.8	9.8
55°	4.3	4.3	4.3	5.4	4.3	4.3	6.5	4.3	5.4	5.4	6.5
57.5°	3.3	3.3	2.2	2.2	3.3	2.2	4.3	2.2	3.3	3.3	3.3
60°	2.2	2.2	3.3	3.3	2.2	3.3	2.2	2.2	2.2	6.5	3.3
62.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3	2.2	2.2	3.3
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	1.1	1.1	1.1	0.0	1.1	1.1	1.1	1.1	1.1	1.1
70°	2.2	1.1	0.0	0.0	0.0	1.1	1.1	1.1	0.0	1.1	1.1
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
75°	0.0	0.0	0.0	1.1	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	1.1	0.0
80°	1.1	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	2.2	1.1	1.1	0.0	2.2	1.1	1.1	1.1	1.1	1.1	1.1
85°	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	1.1	0.0	1.1	1.1	0.0	1.1	1.1	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°	1191.8	1191.8	1191.8	1191.8	1191.8	1191.8	1191.8	1191.8
2.5°	1190.7	1191.8	1191.8	1190.7	1192.9	1190.7	1191.8	1191.8
5°	1177.7	1178.8	1178.8	1177.7	1177.7	1177.7	1177.7	1176.6
7.5°	1146.3	1146.3	1145.2	1144.1	1147.4	1145.2	1144.1	1144.1
10°	1088.8	1088.8	1087.7	1087.7	1087.7	1085.5	1085.5	1085.5
12.5°	1004.2	1005.3	1002.0	1001.0	1001.0	1001.0	1001.0	997.7
15°	904.4	902.3	900.1	899.0	897.9	897.9	897.9	895.8
17.5°	783.0	781.9	779.7	777.6	776.5	776.5	775.4	775.4
20°	660.4	658.3	657.2	657.2	655.0	653.9	652.8	655.0
22.5°	549.8	548.7	546.6	543.3	543.3	542.2	541.1	542.2
25°	458.7	456.6	454.4	452.2	451.1	450.1	447.9	447.9
27.5°	392.6	390.4	388.2	385.0	380.6	377.4	375.2	374.1
30°	337.3	331.8	324.3	316.7	309.1	301.5	298.2	297.1
32.5°	278.7	271.1	259.2	247.3	234.2	225.6	219.1	216.9
35°	216.9	205.0	188.7	174.6	160.5	150.7	144.2	141.0
37.5°	163.8	148.6	132.3	117.1	104.1	95.4	90.0	87.8
40°	111.7	97.6	82.4	69.4	61.8	54.2	52.1	47.7
42.5°	69.4	57.5	46.6	38.0	33.6	29.3	29.3	27.1
45°	42.3	34.7	28.2	22.8	20.6	18.4	17.4	18.4
47.5°	24.9	19.5	18.4	15.2	14.1	11.9	11.9	14.1
50°	13.0	10.8	8.7	8.7	8.7	7.6	7.6	6.5
52.5°	8.7	9.8	7.6	7.6	8.7	6.5	5.4	5.4
55°	5.4	5.4	4.3	5.4	4.3	4.3	4.3	3.3
57.5°	2.2	3.3	3.3	4.3	5.4	5.4	3.3	2.2
60°	2.2	3.3	2.2	3.3	3.3	3.3	3.3	3.3
62.5°	1.1	2.2	2.2	3.3	3.3	1.1	2.2	2.2
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	1.1	1.1	2.2	1.1	2.2	1.1	1.1	1.1
70°	0.0	0.0	2.2	0.0	0.0	1.1	0.0	1.1
72.5°	0.0	1.1	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	1.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	0.0	1.1	0.0	0.0	0.0	0.0	0.0	1.1
87.5°	0.0	1.1	1.1	1.1	1.1	1.1	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)