

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: P123744

Luminaire Tested: **EL406940-TLS408TBZBB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P123744
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P13994)
Test Lab: INNOVATION CENTER-P1
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: EL406940-TLS408TBZBB
Description: HALO 4-INCH RECESSED LED DOWNLIGHT
SQUARE BLACK BAFFLE, SOLITE® LENS AND TUSCAN BRONZE RING
Light Source: (1)SURFACE MOUNT LED, 4000K CCT, 90CRI
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 770.0 lumens
Efficiency: N/A
Efficacy: 59.2 lumens/watt
Spacing Criteria (0/90/45): 0.68 / 0.68 / 0.71
Luminous Opening: Rectangular (W 0.21' x L: 0.21' x H: 0')
CIE Type: Direct

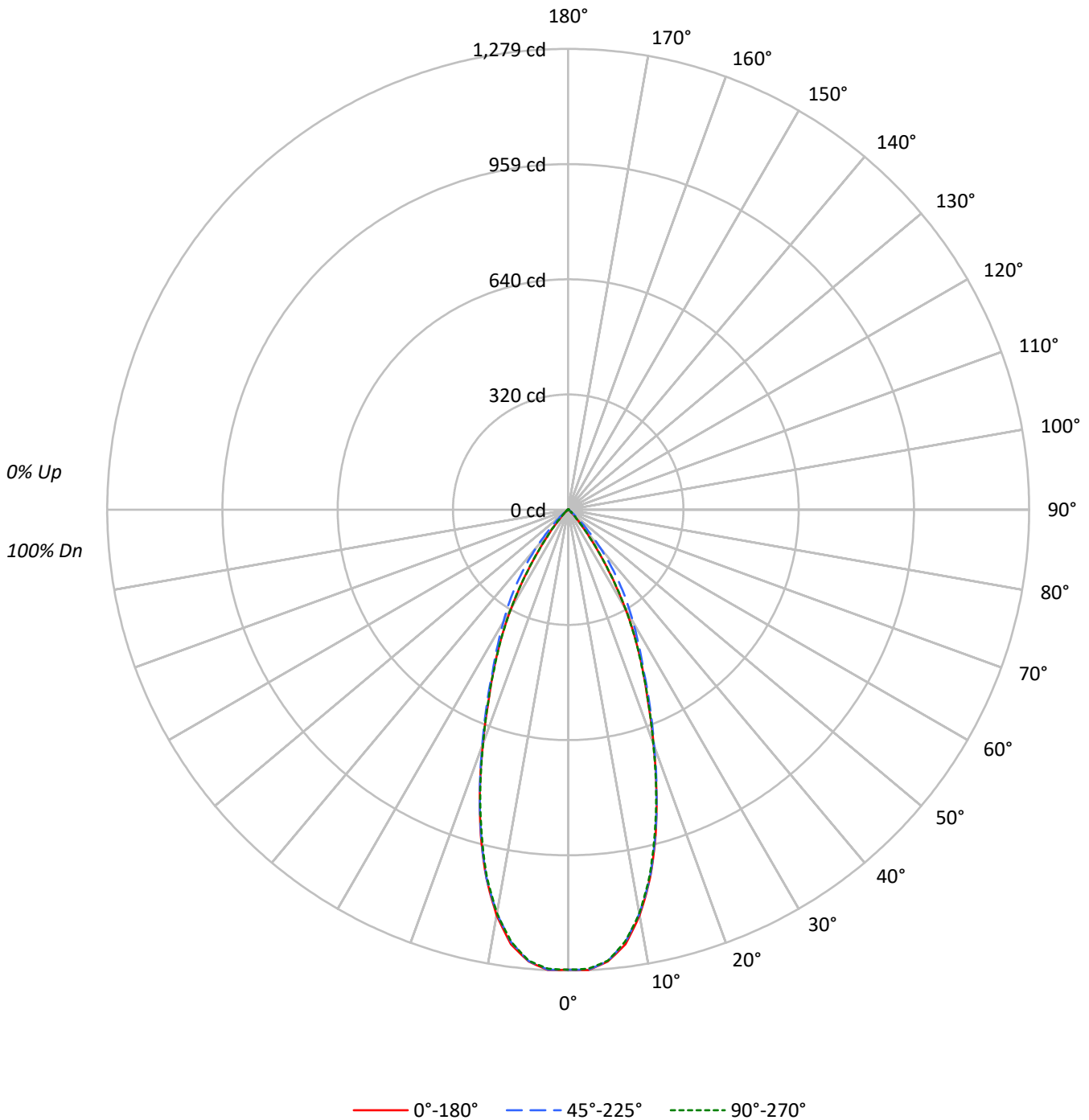
Input Watts (W): 13
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	100	97	107	102	99	96	99	96	94	96	94	92	94	92	90	89
3	104	98	93	89	102	96	92	89	94	90	87	91	88	86	89	87	85	83
4	99	92	87	83	97	91	86	82	89	85	81	87	83	81	85	82	80	78
5	95	87	81	77	93	86	81	77	84	80	76	82	79	76	81	78	75	74
6	90	82	76	73	89	81	76	72	80	75	72	78	74	71	77	74	71	70
7	86	78	72	68	85	77	72	68	76	71	68	75	70	67	74	70	67	66
8	83	74	68	64	81	73	68	64	72	67	64	71	67	64	70	66	64	62
9	79	70	65	61	78	70	64	61	69	64	61	68	64	60	67	63	60	59
10	76	67	61	58	75	66	61	58	66	61	58	65	61	58	64	60	57	56

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	316623	316623	316623
5°	313402	313103	312829
10°	287864	286655	286378
15°	240369	240061	238546
20°	182499	184056	182182
25°	133262	135862	132633
30°	90721	102920	91408
35°	48320	74447	49016
40°	20299	44774	20299
45°	7891	20728	8277
50°	3665	8218	3665
55°	2551	3589	2551
60°	1190	2331	1736
65°	0	0	0
70°	0	0	0
75°	0	0	0
80°	0	1714	1714
85°	3415	0	6829



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.3	15.1
10°-20°	256.6	33.3
20°-30°	228.0	29.6
30°-40°	126.7	16.4
40°-50°	32.8	4.3
50°-60°	7.0	0.9
60°-70°	1.5	0.2
70°-80°	0.4	0.1
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°	600.8	78.0
0°-40°	727.5	94.5
0°-60°	767.3	99.6
0°-90°	770.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	770.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1277	1277	1277	1277	1277	
5°	1259	1261	1258	1258	1257	117
15°	936	934	935	934	929	257
25°	487	492	496	492	485	223
35°	160	196	246	197	162	105
45°	22	31	59	33	24	21
55°	6	6	8	6	6	6
65°	0	0	0	0	0	1
75°	0	0	0	0	0	1
85°	1	1	0	0	2	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°	1276.7	1276.7	1276.7	1276.7	1276.7	1276.7	1276.7	1276.7	1276.7	1276.7	1276.7
2.5°	1279.0	1280.2	1279.0	1280.2	1280.2	1279.0	1279.0	1279.0	1279.0	1277.8	1280.2
5°	1258.9	1258.9	1260.1	1261.3	1262.5	1258.9	1258.9	1260.1	1258.9	1257.7	1258.9
7.5°	1216.4	1216.4	1212.8	1215.2	1214.0	1214.0	1212.8	1212.8	1211.6	1210.5	1211.6
10°	1143.1	1144.3	1143.1	1143.1	1141.9	1141.9	1140.7	1140.7	1140.7	1138.3	1140.7
12.5°	1048.5	1049.7	1048.5	1048.5	1045.0	1045.0	1046.1	1045.0	1047.3	1047.3	1045.0
15°	936.2	936.2	935.0	936.2	935.0	933.8	935.0	935.0	935.0	935.0	935.0
17.5°	814.5	814.5	814.5	814.5	813.3	814.5	814.5	814.5	815.6	814.5	818.0
20°	691.5	692.7	691.5	695.1	695.1	695.1	696.2	697.4	697.4	697.4	699.8
22.5°	579.2	581.6	581.6	584.0	584.0	586.3	586.3	588.7	591.0	592.2	591.0
25°	487.0	487.0	487.0	489.4	490.6	494.1	492.9	494.1	495.3	496.5	497.7
27.5°	403.1	404.3	406.6	411.4	416.1	418.5	420.8	422.0	423.2	423.2	425.6
30°	316.8	319.2	322.7	332.2	341.6	347.5	354.6	359.4	360.5	359.4	361.7
32.5°	234.1	237.6	242.3	251.8	262.4	274.2	286.1	296.7	301.4	302.6	302.6
35°	159.6	163.1	166.7	176.1	188.0	204.5	217.5	229.3	241.1	245.9	242.3
37.5°	102.8	104.0	108.8	117.0	127.7	141.9	157.2	172.6	185.6	189.1	186.8
40°	62.7	65.0	66.2	70.9	80.4	91.0	106.4	120.6	132.4	138.3	134.8
42.5°	36.6	39.0	40.2	44.9	48.5	56.7	65.0	79.2	88.7	93.4	91.0
45°	22.5	23.6	23.6	26.0	28.4	34.3	40.2	48.5	53.2	59.1	57.9
47.5°	15.4	16.5	17.7	17.7	18.9	22.5	26.0	33.1	34.3	36.6	35.5
50°	9.5	10.6	10.6	11.8	11.8	14.2	15.4	18.9	20.1	21.3	21.3
52.5°	7.1	9.5	9.5	9.5	11.8	10.6	11.8	11.8	14.2	13.0	14.2
55°	5.9	5.9	4.7	7.1	5.9	7.1	7.1	7.1	9.5	8.3	9.5
57.5°	5.9	4.7	3.5	4.7	3.5	4.7	7.1	3.5	5.9	5.9	5.9
60°	2.4	3.5	2.4	4.7	2.4	4.7	2.4	3.5	3.5	4.7	4.7
62.5°	2.4	3.5	2.4	4.7	3.5	2.4	2.4	2.4	2.4	2.4	3.5
65°	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	1.2
67.5°	1.2	1.2	1.2	1.2	1.2	0.0	1.2	1.2	1.2	1.2	2.4
70°	0.0	1.2	1.2	2.4	1.2	1.2	0.0	1.2	2.4	0.0	1.2
72.5°	1.2	1.2	0.0	1.2	1.2	0.0	0.0	0.0	0.0	1.2	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
77.5°	1.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	1.2
80°	0.0	1.2	0.0	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	1.2	1.2	0.0	1.2	1.2	1.2	0.0	1.2	0.0	1.2	1.2
85°	1.2	1.2	0.0	1.2	1.2	1.2	1.2	1.2	0.0	0.0	1.2
87.5°	2.4	1.2	0.0	0.0	0.0	1.2	0.0	1.2	1.2	1.2	1.2
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°	1276.7	1276.7	1276.7	1276.7	1276.7	1276.7	1276.7	1276.7
2.5°	1276.7	1276.7	1276.7	1277.8	1277.8	1277.8	1280.2	1275.5
5°	1256.6	1256.6	1257.7	1258.9	1258.9	1257.7	1260.1	1256.6
7.5°	1211.6	1210.5	1210.5	1214.0	1210.5	1209.3	1210.5	1209.3
10°	1138.3	1139.5	1138.3	1138.3	1138.3	1138.3	1139.5	1137.2
12.5°	1043.8	1045.0	1043.8	1043.8	1043.8	1042.6	1045.0	1042.6
15°	933.8	933.8	933.8	933.8	932.7	932.7	935.0	929.1
17.5°	815.6	814.5	815.6	815.6	814.5	813.3	813.3	810.9
20°	697.4	696.2	693.9	693.9	693.9	692.7	692.7	690.3
22.5°	588.7	586.3	588.7	585.1	582.8	581.6	581.6	581.6
25°	495.3	492.9	491.7	491.7	488.2	487.0	489.4	484.7
27.5°	422.0	420.8	419.6	414.9	413.7	407.8	404.3	400.7
30°	359.4	355.8	346.4	340.4	329.8	323.9	318.0	319.2
32.5°	295.5	286.1	275.4	262.4	250.6	243.5	238.8	234.1
35°	230.5	217.5	205.7	189.1	177.3	167.9	161.9	161.9
37.5°	173.8	158.4	143.0	128.8	117.0	109.9	105.2	102.8
40°	121.8	106.4	92.2	80.4	72.1	67.4	65.0	62.7
42.5°	82.7	67.4	56.7	49.6	44.9	41.4	40.2	37.8
45°	50.8	42.6	35.5	29.6	27.2	26.0	26.0	23.6
47.5°	31.9	27.2	24.8	21.3	18.9	16.5	16.5	16.5
50°	18.9	16.5	14.2	13.0	11.8	10.6	11.8	9.5
52.5°	11.8	10.6	10.6	9.5	8.3	9.5	8.3	13.0
55°	8.3	7.1	7.1	5.9	7.1	5.9	7.1	5.9
57.5°	4.7	3.5	7.1	3.5	4.7	3.5	4.7	2.4
60°	4.7	3.5	2.4	3.5	2.4	3.5	4.7	3.5
62.5°	1.2	2.4	2.4	3.5	3.5	2.4	2.4	3.5
65°	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0
67.5°	0.0	0.0	1.2	1.2	0.0	1.2	1.2	0.0
70°	0.0	1.2	0.0	0.0	0.0	0.0	1.2	0.0
72.5°	0.0	0.0	0.0	1.2	0.0	0.0	1.2	1.2
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	0.0
80°	1.2	1.2	1.2	0.0	1.2	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0
85°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	2.4
87.5°	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

(END OF REPORT)