

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: P123742

Luminaire Tested: **EL406930-TLS408TBZBB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P123742
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: EL406930-TLS408TBZBB
Description: HALO 4-INCH RECESSED LED DOWNLIGHT
SQUARE BLACK BAFFLE, SOLITE® LENS AND TUSCAN BRONZE RING
Light Source: (1)SURFACE MOUNT LED, 3000K CCT, 90CRI
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 690.0 lumens
Efficiency: N/A
Efficacy: 53.1 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

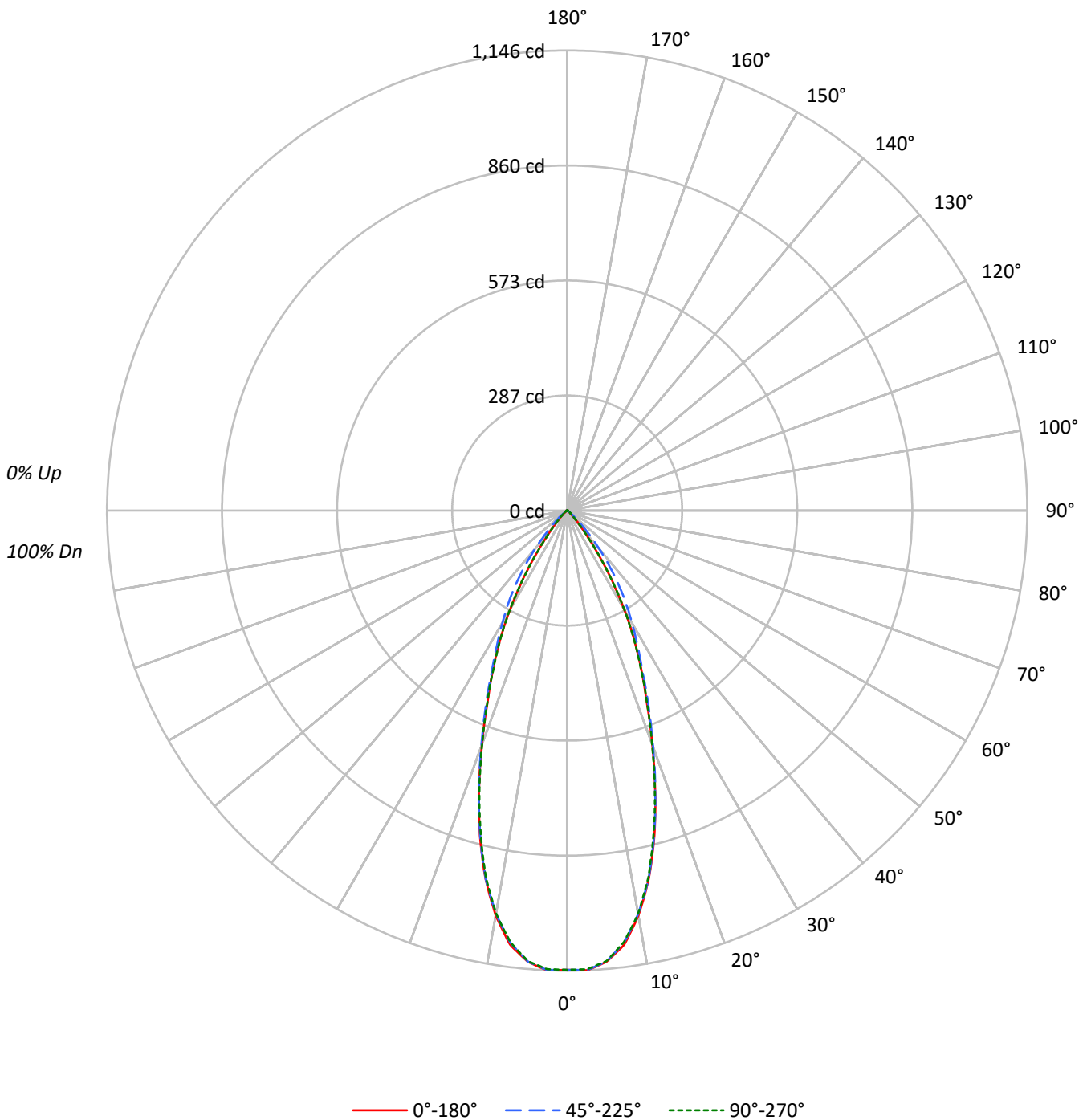
Input Watts (W): 13
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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					100			
1	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94					94			
2	109	104	100	97	107	102	99	96	99	96	94	96	94	92	94	92	90	89					89			
3	104	98	93	89	102	96	92	89	94	90	87	91	88	86	89	87	85	83					83			
4	99	92	87	83	97	91	86	82	89	85	81	87	83	81	85	82	80	78					78			
5	95	87	81	77	93	86	81	77	84	80	76	82	79	76	81	78	75	74					74			
6	90	82	76	73	89	81	76	72	80	75	72	78	74	71	77	74	71	70					70			
7	86	78	72	68	85	77	72	68	76	71	68	75	70	67	74	70	67	66					66			
8	83	74	68	64	81	73	68	64	72	67	64	71	67	64	70	66	64	62					62			
9	79	70	65	61	78	70	64	61	69	64	61	68	64	60	67	63	60	59					59			
10	76	67	61	58	75	66	61	58	66	61	58	65	61	58	64	60	57	56					56			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	283714	283714	283714
5°	280839	280590	280316
10°	257947	256889	256612
15°	215388	215131	213770
20°	163550	164948	163259
25°	119416	121742	118842
30°	81300	92210	81901
35°	43294	66697	43930
40°	18162	40112	18162
45°	7050	18589	7435
50°	3279	7369	3279
55°	2292	3200	2292
60°	1042	2083	1587
65°	0	0	0
70°	0	0	0
75°	0	0	0
80°	0	1571	1571
85°	3130	0	5976



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.2	15.1
10°-20°	229.9	33.3
20°-30°	204.3	29.6
30°-40°	113.5	16.4
40°-50°	29.4	4.3
50°-60°	6.3	0.9
60°-70°	1.4	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°	538.4	78.0
0°-40°	651.9	94.5
0°-60°	687.6	99.6
0°-90°	690.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	690.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1144	1144	1144	1144	1144	
5°	1128	1130	1127	1128	1126	104
15°	839	837	838	837	833	230
25°	436	441	445	441	434	200
35°	143	176	220	177	145	94
45°	20	28	53	29	21	19
55°	5	6	7	6	5	5
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°	1144.0	1144.0	1144.0	1144.0	1144.0	1144.0	1144.0	1144.0	1144.0	1144.0	1144.0
2.5°	1146.1	1147.2	1146.1	1147.2	1147.2	1146.1	1146.1	1146.1	1146.1	1145.1	1147.2
5°	1128.1	1128.1	1129.2	1130.2	1131.3	1128.1	1128.1	1129.2	1128.1	1127.1	1128.1
7.5°	1090.0	1090.0	1086.8	1088.9	1087.9	1087.9	1086.8	1086.8	1085.8	1084.7	1085.8
10°	1024.3	1025.4	1024.3	1024.3	1023.3	1023.3	1022.2	1022.2	1022.2	1020.1	1022.2
12.5°	939.6	940.6	939.6	939.6	936.4	936.4	937.5	936.4	938.5	938.5	936.4
15°	838.9	838.9	837.9	838.9	837.9	836.8	837.9	837.9	837.9	837.9	837.9
17.5°	729.8	729.8	729.8	729.8	728.8	729.8	729.8	729.8	730.9	729.8	733.0
20°	619.7	620.7	619.7	622.9	622.9	622.9	623.9	625.0	625.0	625.0	627.1
22.5°	519.0	521.2	521.2	523.3	523.3	525.4	525.4	527.5	529.6	530.7	529.6
25°	436.4	436.4	436.4	438.5	439.6	442.8	441.7	442.8	443.8	444.9	446.0
27.5°	361.2	362.3	364.4	368.6	372.9	375.0	377.1	378.2	379.2	379.2	381.3
30°	283.9	286.0	289.2	297.7	306.1	311.4	317.8	322.0	323.1	322.0	324.1
32.5°	209.7	212.9	217.2	225.6	235.2	245.8	256.3	265.9	270.1	271.2	271.2
35°	143.0	146.2	149.4	157.8	168.4	183.3	194.9	205.5	216.1	220.3	217.2
37.5°	92.2	93.2	97.5	104.9	114.4	127.1	140.9	154.7	166.3	169.5	167.4
40°	56.1	58.3	59.3	63.6	72.0	81.6	95.3	108.0	118.6	123.9	120.8
42.5°	32.8	35.0	36.0	40.3	43.4	50.8	58.3	71.0	79.4	83.7	81.6
45°	20.1	21.2	21.2	23.3	25.4	30.7	36.0	43.4	47.7	53.0	51.9
47.5°	13.8	14.8	15.9	15.9	16.9	20.1	23.3	29.7	30.7	32.8	31.8
50°	8.5	9.5	9.5	10.6	10.6	12.7	13.8	16.9	18.0	19.1	19.1
52.5°	6.4	8.5	8.5	8.5	10.6	9.5	10.6	10.6	12.7	11.7	12.7
55°	5.3	5.3	4.2	6.4	5.3	6.4	6.4	6.4	8.5	7.4	8.5
57.5°	5.3	4.2	3.2	4.2	3.2	4.2	6.4	3.2	5.3	5.3	5.3
60°	2.1	3.2	2.1	4.2	2.1	4.2	2.1	3.2	3.2	4.2	4.2
62.5°	2.1	3.2	2.1	4.2	3.2	2.1	2.1	2.1	2.1	2.1	3.2
65°	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1
67.5°	1.1	1.1	1.1	1.1	1.1	0.0	1.1	1.1	1.1	1.1	2.1
70°	0.0	1.1	1.1	2.1	1.1	1.1	0.0	1.1	2.1	0.0	1.1
72.5°	1.1	1.1	0.0	1.1	1.1	0.0	0.0	0.0	0.0	1.1	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
77.5°	1.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1
80°	0.0	1.1	0.0	2.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	1.1	1.1	0.0	1.1	1.1	1.1	0.0	1.1	0.0	1.1	1.1
85°	1.1	1.1	0.0	1.1	1.1	1.1	1.1	1.1	0.0	0.0	1.1
87.5°	2.1	1.1	0.0	0.0	0.0	1.1	0.0	1.1	1.1	1.1	1.1
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°	1144.0	1144.0	1144.0	1144.0	1144.0	1144.0	1144.0	1144.0
2.5°	1144.0	1144.0	1144.0	1145.1	1145.1	1145.1	1147.2	1143.0
5°	1126.0	1126.0	1127.1	1128.1	1128.1	1127.1	1129.2	1126.0
7.5°	1085.8	1084.7	1084.7	1087.9	1084.7	1083.6	1084.7	1083.6
10°	1020.1	1021.1	1020.1	1020.1	1020.1	1020.1	1021.1	1019.0
12.5°	935.3	936.4	935.3	935.3	935.3	934.3	936.4	934.3
15°	836.8	836.8	836.8	836.8	835.8	835.8	837.9	832.6
17.5°	730.9	729.8	730.9	730.9	729.8	728.8	728.8	726.7
20°	625.0	623.9	621.8	621.8	621.8	620.7	620.7	618.6
22.5°	527.5	525.4	527.5	524.3	522.2	521.2	521.2	521.2
25°	443.8	441.7	440.7	440.7	437.5	436.4	438.5	434.3
27.5°	378.2	377.1	376.0	371.8	370.7	365.4	362.3	359.1
30°	322.0	318.8	310.4	305.1	295.5	290.2	284.9	286.0
32.5°	264.8	256.3	246.8	235.2	224.6	218.2	214.0	209.7
35°	206.6	194.9	184.3	169.5	158.9	150.4	145.1	145.1
37.5°	155.7	141.9	128.2	115.5	104.9	98.5	94.3	92.2
40°	109.1	95.3	82.6	72.0	64.6	60.4	58.3	56.1
42.5°	74.1	60.4	50.8	44.5	40.3	37.1	36.0	33.9
45°	45.5	38.1	31.8	26.5	24.4	23.3	23.3	21.2
47.5°	28.6	24.4	22.2	19.1	16.9	14.8	14.8	14.8
50°	16.9	14.8	12.7	11.7	10.6	9.5	10.6	8.5
52.5°	10.6	9.5	9.5	8.5	7.4	8.5	7.4	11.7
55°	7.4	6.4	6.4	5.3	6.4	5.3	6.4	5.3
57.5°	4.2	3.2	6.4	3.2	4.2	3.2	4.2	2.1
60°	4.2	3.2	2.1	3.2	2.1	3.2	4.2	3.2
62.5°	1.1	2.1	2.1	3.2	3.2	2.1	2.1	3.2
65°	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0
67.5°	0.0	0.0	1.1	1.1	0.0	1.1	1.1	0.0
70°	0.0	1.1	0.0	0.0	0.0	0.0	1.1	0.0
72.5°	0.0	0.0	0.0	1.1	0.0	0.0	1.1	1.1
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°	1.1	1.1	1.1	0.0	1.1	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	0.0
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	2.1
87.5°	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

(END OF REPORT)