

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: P123737

Luminaire Tested: **EL406927-TLS408SNBB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P123737
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: EL406927-TLS408SNBB
Description: HALO 4-INCH RECESSED LED DOWNLIGHT
SQUARE BLACK BAFFLE, SOLITE® LENS AND SATIN NICKEL RING
Light Source: (1)SURFACE MOUNT LED, 2700K CCT, 90CRI
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 660.0 lumens
Efficiency: N/A
Efficacy: 50.8 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

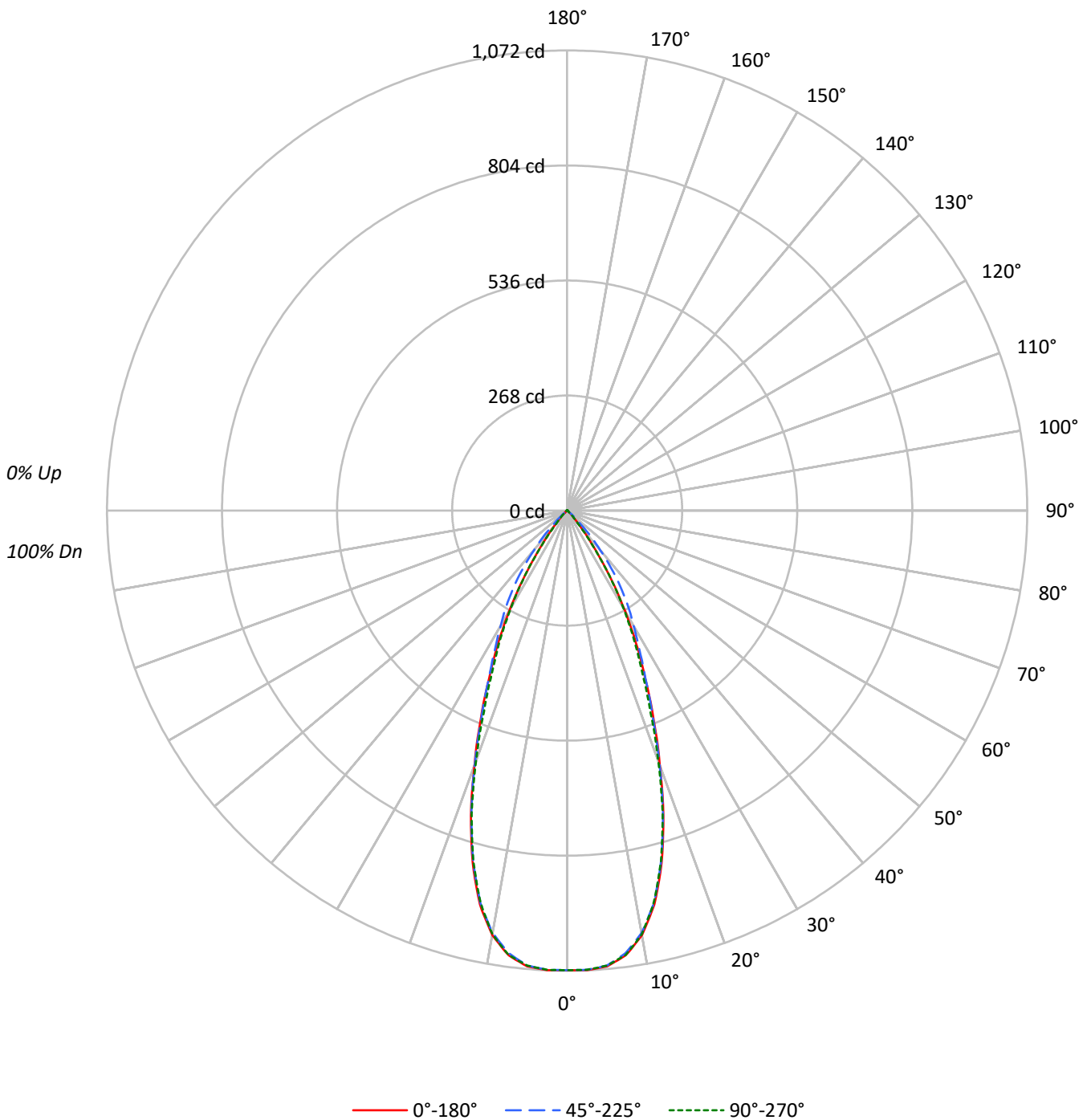
Input Watts (W): 13
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	265510	265510	265510
5°	265330	264832	264832
10°	252910	251676	252406
15°	218263	217005	216748
20°	166664	166136	163814
25°	117774	118048	112438
30°	76861	88602	74914
35°	38722	65607	38419
40°	13597	38849	12626
45°	5471	15397	4454
50°	1891	4900	2276
55°	865	865	865
60°	496	496	992
65°	587	587	587
70°	1450	725	725
75°	958	958	1916
80°	0	0	0
85°	0	0	2845



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	99.6	15.1
10°-20°	231.0	35.0
20°-30°	198.5	30.1
30°-40°	105.8	16.0
40°-50°	22.4	3.4
50°-60°	1.7	0.3
60°-70°	0.6	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°	529.1	80.2
0°-40°	635.0	96.2
0°-60°	659.0	99.8
0°-90°	660.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	660.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1071	1071	1071	1071	1071	
5°	1066	1065	1064	1065	1064	100
15°	850	847	845	845	844	232
25°	430	431	431	418	411	198
35°	128	164	217	164	127	84
45°	16	20	44	19	13	13
55°	2	2	2	2	2	1
65°	1	1	1	1	1	1
75°	1	0	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°	1070.6	1070.6	1070.6	1070.6	1070.6	1070.6	1070.6	1070.6	1070.6	1070.6	1070.6
2.5°	1071.6	1071.6	1072.6	1072.6	1071.6	1070.6	1072.6	1070.6	1070.6	1070.6	1070.6
5°	1065.8	1064.8	1065.8	1064.8	1063.8	1066.7	1065.8	1064.8	1062.8	1063.8	1064.8
7.5°	1045.3	1043.3	1043.3	1042.3	1042.3	1041.4	1042.3	1040.4	1041.4	1040.4	1041.4
10°	1004.3	1003.3	1003.3	1002.3	1002.3	1000.4	1001.3	1001.3	998.4	999.4	999.4
12.5°	939.9	936.9	936.9	936.9	936.9	936.0	936.0	936.0	934.0	935.0	935.0
15°	850.1	848.1	847.1	849.1	847.1	846.2	846.2	847.1	847.1	845.2	847.1
17.5°	745.6	744.7	745.6	744.7	744.7	743.7	743.7	742.7	742.7	742.7	741.7
20°	631.5	633.4	632.4	631.5	631.5	631.5	632.4	630.5	630.5	629.5	627.5
22.5°	527.0	524.1	523.1	525.1	524.1	524.1	524.1	523.1	522.1	521.2	519.2
25°	430.4	429.4	428.5	430.4	430.4	432.4	433.3	434.3	433.3	431.4	429.4
27.5°	347.4	347.4	349.4	353.3	356.2	360.1	362.1	363.1	364.0	363.1	359.2
30°	268.4	271.3	275.2	281.1	287.9	296.7	302.6	306.5	308.4	309.4	309.4
32.5°	194.2	195.2	202.0	210.8	220.6	234.2	246.9	256.7	261.6	263.5	263.5
35°	127.9	129.8	134.7	144.4	157.1	171.8	186.4	203.0	214.7	216.7	212.8
37.5°	77.1	78.1	83.9	91.7	101.5	116.1	133.7	149.3	163.0	167.9	164.0
40°	42.0	42.9	46.8	51.7	58.6	70.3	85.9	100.5	115.2	120.0	115.2
42.5°	24.4	24.4	26.4	28.3	33.2	40.0	50.8	62.5	74.2	79.1	73.2
45°	15.6	13.7	12.7	15.6	19.5	21.5	28.3	35.1	42.0	43.9	41.0
47.5°	6.8	7.8	9.8	9.8	10.7	12.7	15.6	19.5	22.4	24.4	20.5
50°	4.9	5.9	5.9	5.9	5.9	7.8	7.8	10.7	11.7	12.7	11.7
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
55°	2.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.9	2.0	2.9
57.5°	1.0	1.0	1.0	2.9	1.0	2.0	1.0	2.0	2.0	2.0	1.0
60°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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°	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0
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°	2.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	1.0	2.9
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°	1.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	1.0
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	1.0
87.5°	0.0	0.0	0.0	0.0	0.0	1.0	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	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1070.6	1070.6	1070.6	1070.6	1070.6	1070.6	1070.6	1070.6
2.5°	1069.7	1070.6	1068.7	1070.6	1069.7	1069.7	1069.7	1070.6
5°	1063.8	1063.8	1063.8	1065.8	1063.8	1064.8	1062.8	1063.8
7.5°	1040.4	1041.4	1041.4	1043.3	1043.3	1042.3	1043.3	1044.3
10°	998.4	998.4	998.4	1000.4	999.4	1000.4	1002.3	1002.3
12.5°	934.0	935.0	933.0	934.0	932.1	934.0	933.0	934.0
15°	845.2	845.2	844.2	845.2	844.2	844.2	843.2	844.2
17.5°	739.8	739.8	739.8	738.8	737.8	738.8	737.8	739.8
20°	626.6	624.6	622.7	624.6	622.7	620.7	618.8	620.7
22.5°	516.3	514.3	511.4	510.4	508.5	506.5	506.5	506.5
25°	426.5	423.6	418.7	417.7	414.8	412.8	412.8	410.9
27.5°	359.2	355.3	352.3	348.4	343.5	339.6	335.7	335.7
30°	306.5	301.6	293.8	285.0	276.2	268.4	264.5	261.6
32.5°	256.7	246.9	234.2	220.6	208.9	199.1	192.3	192.3
35°	203.0	189.3	170.8	156.2	141.5	132.7	127.9	126.9
37.5°	149.3	132.7	115.2	99.5	87.8	80.0	75.1	74.2
40°	100.5	83.9	68.3	55.6	47.8	42.9	40.0	39.0
42.5°	62.5	47.8	38.1	31.2	29.3	23.4	21.5	22.4
45°	33.2	26.4	20.5	17.6	13.7	13.7	12.7	12.7
47.5°	17.6	14.6	11.7	8.8	7.8	7.8	6.8	8.8
50°	9.8	7.8	6.8	4.9	4.9	4.9	4.9	5.9
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55°	2.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
57.5°	1.0	2.9	1.0	1.0	1.0	1.0	1.0	2.9
60°	1.0	2.0	1.0	1.0	0.0	1.0	1.0	2.0
62.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65°	2.0	2.0	1.0	1.0	1.0	0.0	2.0	1.0
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	1.0	2.0	2.9	2.9	1.0	2.0	1.0	1.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	1.0	1.0	0.0	1.0	1.0	2.0
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	1.0
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)