

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: P123739

Luminaire Tested: **EL406935-TLS408SNBB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P123739
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: EL406935-TLS408SNBB
Description: HALO 4-INCH RECESSED LED DOWNLIGHT
SQUARE BLACK BAFFLE, SOLITE® LENS AND SATIN NICKEL RING
Light Source: (1)SURFACE MOUNT LED, 3500K CCT, 90CRI
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 730.0 lumens
Efficiency: N/A
Efficacy: 56.2 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

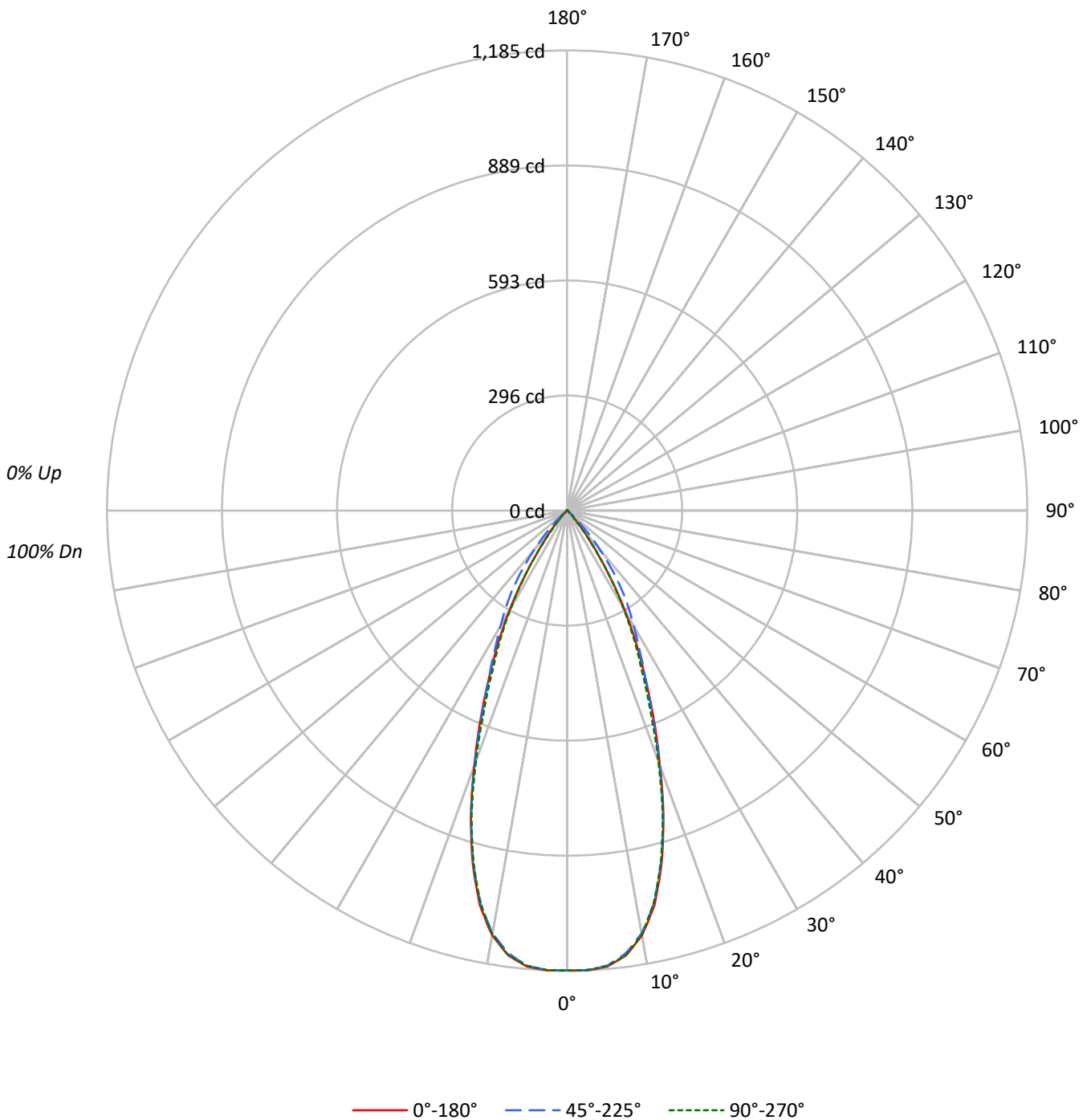
Input Watts (W): 13
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	293683	293683	293683
5°	293461	292913	292913
10°	279730	278370	279176
15°	241396	240010	239753
20°	184320	183766	181206
25°	130280	130553	124369
30°	85022	97995	82846
35°	42809	72540	42476
40°	15022	42993	13986
45°	6068	17045	4910
50°	2083	5402	2508
55°	951	951	951
60°	546	546	1091
65°	646	646	646
70°	1595	798	798
75°	1054	1054	2108
80°	0	0	0
85°	0	0	3130



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	110.1	15.1
10°-20°	255.5	35.0
20°-30°	219.6	30.1
30°-40°	117.1	16.0
40°-50°	24.7	3.4
50°-60°	1.8	0.3
60°-70°	0.7	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°	585.3	80.2
0°-40°	702.3	96.2
0°-60°	728.9	99.8
0°-90°	730.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	730.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1184	1184	1184	1184	1184	
5°	1179	1178	1177	1178	1177	110
15°	940	936	935	934	934	257
25°	476	477	477	463	454	219
35°	141	182	240	181	140	93
45°	17	23	49	21	14	15
55°	2	2	2	2	2	1
65°	1	1	1	1	1	1
75°	1	1	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°	1184.2	1184.2	1184.2	1184.2	1184.2	1184.2	1184.2	1184.2	1184.2	1184.2	1184.2
2.5°	1185.3	1185.3	1186.4	1186.4	1185.3	1184.2	1186.4	1184.2	1184.2	1184.2	1184.2
5°	1178.8	1177.7	1178.8	1177.7	1176.6	1179.9	1178.8	1177.7	1175.6	1176.6	1177.7
7.5°	1156.1	1154.0	1154.0	1152.9	1152.9	1151.8	1152.9	1150.7	1151.8	1150.7	1151.8
10°	1110.8	1109.7	1109.7	1108.6	1108.6	1106.5	1107.6	1107.6	1104.3	1105.4	1105.4
12.5°	1039.5	1036.3	1036.3	1036.3	1036.3	1035.2	1035.2	1035.2	1033.1	1034.1	1034.1
15°	940.2	938.1	937.0	939.2	937.0	935.9	935.9	937.0	937.0	934.8	937.0
17.5°	824.7	823.6	824.7	823.6	823.6	822.6	822.6	821.5	821.5	821.5	820.4
20°	698.4	700.6	699.5	698.4	698.4	698.4	699.5	697.3	697.3	696.3	694.1
22.5°	582.9	579.7	578.6	580.8	579.7	579.7	579.7	578.6	577.5	576.4	574.3
25°	476.1	475.0	473.9	476.1	476.1	478.2	479.3	480.4	479.3	477.1	475.0
27.5°	384.3	384.3	386.5	390.8	394.0	398.3	400.5	401.6	402.6	401.6	397.2
30°	296.9	300.1	304.4	310.9	318.4	328.2	334.6	339.0	341.1	342.2	342.2
32.5°	214.8	215.9	223.5	233.2	244.0	259.1	273.1	283.9	289.3	291.5	291.5
35°	141.4	143.6	149.0	159.8	173.8	190.0	206.2	224.5	237.5	239.6	235.3
37.5°	85.3	86.4	92.8	101.5	112.3	128.5	147.9	165.2	180.3	185.7	181.4
40°	46.4	47.5	51.8	57.2	64.8	77.7	95.0	111.2	127.4	132.8	127.4
42.5°	27.0	27.0	29.1	31.3	36.7	44.3	56.1	69.1	82.0	87.4	81.0
45°	17.3	15.1	14.0	17.3	21.6	23.7	31.3	38.9	46.4	48.6	45.3
47.5°	7.6	8.6	10.8	10.8	11.9	14.0	17.3	21.6	24.8	27.0	22.7
50°	5.4	6.5	6.5	6.5	6.5	8.6	8.6	11.9	13.0	14.0	13.0
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
55°	2.2	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.2	2.2	3.2
57.5°	1.1	1.1	1.1	3.2	1.1	2.2	1.1	2.2	2.2	2.2	1.1
60°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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°	1.1	1.1	1.1	1.1	1.1	1.1	2.2	1.1	1.1	1.1	1.1
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°	2.2	2.2	1.1	1.1	1.1	1.1	2.2	2.2	2.2	1.1	3.2
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°	1.1	0.0	1.1	0.0	0.0	1.1	0.0	1.1	0.0	1.1	1.1
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	1.1
87.5°	0.0	0.0	0.0	0.0	0.0	1.1	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°	1184.2	1184.2	1184.2	1184.2	1184.2	1184.2	1184.2	1184.2
2.5°	1183.1	1184.2	1182.0	1184.2	1183.1	1183.1	1183.1	1184.2
5°	1176.6	1176.6	1176.6	1178.8	1176.6	1177.7	1175.6	1176.6
7.5°	1150.7	1151.8	1151.8	1154.0	1154.0	1152.9	1154.0	1155.0
10°	1104.3	1104.3	1104.3	1106.5	1105.4	1106.5	1108.6	1108.6
12.5°	1033.1	1034.1	1032.0	1033.1	1030.9	1033.1	1032.0	1033.1
15°	934.8	934.8	933.8	934.8	933.8	933.8	932.7	933.8
17.5°	818.2	818.2	818.2	817.2	816.1	817.2	816.1	818.2
20°	693.0	690.9	688.7	690.9	688.7	686.6	684.4	686.6
22.5°	571.0	568.9	565.6	564.6	562.4	560.3	560.3	560.3
25°	471.7	468.5	463.1	462.0	458.8	456.6	456.6	454.5
27.5°	397.2	392.9	389.7	385.4	380.0	375.7	371.3	371.3
30°	339.0	333.6	324.9	315.2	305.5	296.9	292.5	289.3
32.5°	283.9	273.1	259.1	244.0	231.0	220.2	212.7	212.7
35°	224.5	209.4	188.9	172.7	156.5	146.8	141.4	140.3
37.5°	165.2	146.8	127.4	110.1	97.2	88.5	83.1	82.0
40°	111.2	92.8	75.6	61.5	52.9	47.5	44.3	43.2
42.5°	69.1	52.9	42.1	34.5	32.4	25.9	23.7	24.8
45°	36.7	29.1	22.7	19.4	15.1	15.1	14.0	14.0
47.5°	19.4	16.2	13.0	9.7	8.6	8.6	7.6	9.7
50°	10.8	8.6	7.6	5.4	5.4	5.4	5.4	6.5
52.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55°	2.2	2.2	1.1	2.2	1.1	2.2	1.1	2.2
57.5°	1.1	3.2	1.1	1.1	1.1	1.1	1.1	3.2
60°	1.1	2.2	1.1	1.1	0.0	1.1	1.1	2.2
62.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65°	2.2	2.2	1.1	1.1	1.1	0.0	2.2	1.1
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	1.1	2.2	3.2	3.2	1.1	2.2	1.1	1.1
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	1.1	1.1	0.0	1.1	1.1	2.2
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	1.1
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)