

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: P123746

Luminaire Tested: **EL406930-TLS408WHBB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P123746
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: EL406930-TLS408WHBB
Description: HALO 4-INCH RECESSED LED DOWNLIGHT
SQUARE BLACK BAFFLE, SOLITE® LENS AND WHITE RING
Light Source: (1)SURFACE MOUNT LED, 3000K CCT, 90CRI
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 710.0 lumens
Efficiency: N/A
Efficacy: 54.6 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

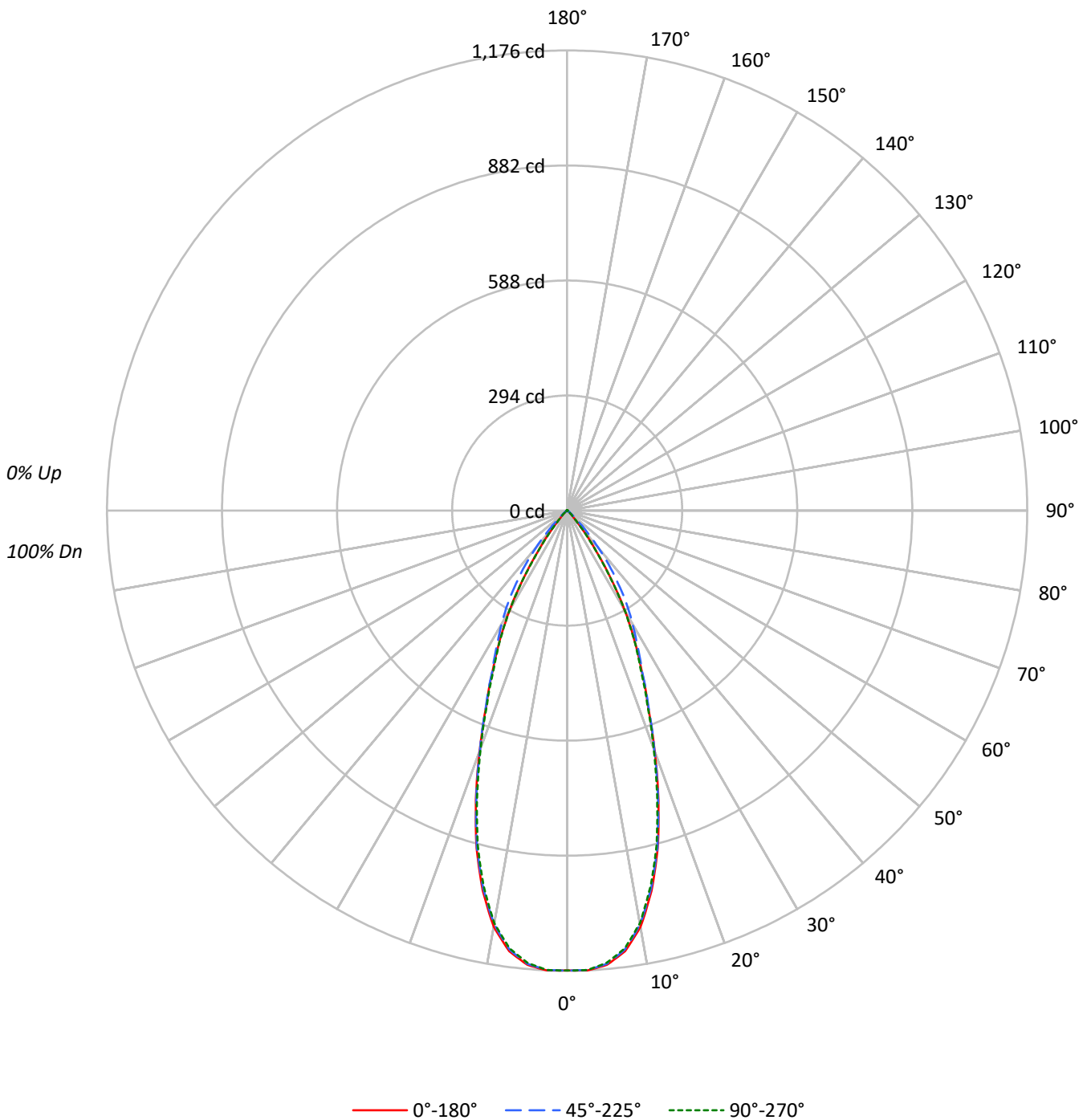
Input Watts (W): 13
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	78	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°	455428	455428	455428
5°	453395	452150	451333
10°	424995	422476	421217
15°	358645	357361	354352
20°	269441	268988	266349
25°	192487	193855	188852
30°	131594	149760	131102
35°	67268	107240	65754
40°	25444	62219	23825
45°	9371	25811	9974
50°	4521	9043	3858
55°	2905	3581	2162
60°	1627	4960	2480
65°	0	0	0
70°	2379	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°	108.3	15.2
10°-20°	242.8	34.2
20°-30°	210.0	29.6
30°-40°	115.8	16.3
40°-50°	26.1	3.7
50°-60°	4.8	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°	561.1	79.0
0°-40°	676.9	95.3
0°-60°	707.9	99.7
0°-90°	710.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	710.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1175	1175	1175	1175	1175	
5°	1166	1165	1162	1162	1160	109
15°	894	893	891	887	883	244
25°	450	451	453	447	442	208
35°	142	179	227	179	139	95
45°	17	25	47	25	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°	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3
2.5°	1176.3	1176.3	1176.3	1177.4	1177.4	1177.4	1176.3	1175.3	1176.3	1175.3	1175.3
5°	1165.6	1165.6	1166.7	1165.6	1165.6	1164.6	1163.5	1163.5	1162.4	1162.4	1161.4
7.5°	1135.7	1135.7	1135.7	1135.7	1136.8	1133.6	1130.4	1132.5	1133.6	1131.4	1132.5
10°	1080.1	1079.0	1079.0	1080.1	1078.0	1079.0	1076.9	1074.7	1073.7	1073.7	1073.7
12.5°	995.6	995.6	994.5	993.5	993.5	992.4	991.3	991.3	990.3	989.2	988.1
15°	894.0	893.0	894.0	893.0	893.0	893.0	891.9	890.8	890.8	890.8	888.7
17.5°	775.3	773.2	775.3	773.2	774.2	774.2	774.2	773.2	773.2	772.1	772.1
20°	653.4	652.3	653.4	653.4	653.4	654.5	653.4	653.4	654.5	652.3	651.3
22.5°	540.0	540.0	540.0	541.1	542.2	543.3	544.3	544.3	544.3	543.3	542.2
25°	450.2	447.0	448.1	448.1	451.3	451.3	452.4	452.4	454.5	453.4	452.4
27.5°	371.1	372.2	372.2	378.6	381.8	386.1	387.1	388.2	388.2	388.2	387.1
30°	294.1	296.2	298.4	305.8	313.3	319.8	327.2	332.6	333.7	334.7	333.7
32.5°	216.0	217.1	223.5	232.1	242.8	254.5	266.3	274.8	282.3	283.4	280.2
35°	142.2	143.3	150.8	159.3	172.2	186.1	201.0	214.9	224.6	226.7	224.6
37.5°	90.9	92.0	96.2	104.8	115.5	129.4	147.6	162.5	172.2	176.5	171.1
40°	50.3	51.3	53.5	62.0	69.5	80.2	94.1	109.1	119.8	123.0	119.8
42.5°	26.7	28.9	29.9	33.2	38.5	46.0	55.6	66.3	74.9	79.1	75.9
45°	17.1	17.1	18.2	20.3	22.5	26.7	32.1	39.6	43.8	47.1	46.0
47.5°	10.7	10.7	12.8	12.8	15.0	16.0	20.3	23.5	24.6	25.7	25.7
50°	7.5	6.4	7.5	7.5	8.6	8.6	10.7	12.8	12.8	15.0	13.9
52.5°	5.3	6.4	5.3	6.4	6.4	7.5	6.4	7.5	8.6	9.6	9.6
55°	4.3	4.3	4.3	5.3	4.3	4.3	6.4	4.3	5.3	5.3	6.4
57.5°	3.2	3.2	2.1	2.1	3.2	2.1	4.3	2.1	3.2	3.2	3.2
60°	2.1	2.1	3.2	3.2	2.1	3.2	2.1	2.1	2.1	6.4	3.2
62.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2	2.1	2.1	3.2
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°	2.1	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°	2.1	1.1	1.1	0.0	2.1	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°	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3	1175.3
2.5°	1174.2	1175.3	1175.3	1174.2	1176.3	1174.2	1175.3	1175.3
5°	1161.4	1162.4	1162.4	1161.4	1161.4	1161.4	1161.4	1160.3
7.5°	1130.4	1130.4	1129.3	1128.2	1131.4	1129.3	1128.2	1128.2
10°	1073.7	1073.7	1072.6	1072.6	1072.6	1070.5	1070.5	1070.5
12.5°	990.3	991.3	988.1	987.1	987.1	987.1	987.1	983.9
15°	891.9	889.7	887.6	886.5	885.5	885.5	885.5	883.3
17.5°	772.1	771.0	768.9	766.8	765.7	765.7	764.6	764.6
20°	651.3	649.1	648.1	648.1	645.9	644.8	643.8	645.9
22.5°	542.2	541.1	539.0	535.8	535.8	534.7	533.6	534.7
25°	452.4	450.2	448.1	445.9	444.9	443.8	441.7	441.7
27.5°	387.1	385.0	382.8	379.6	375.4	372.2	370.0	368.9
30°	332.6	327.2	319.8	312.3	304.8	297.3	294.1	293.0
32.5°	274.8	267.4	255.6	243.8	231.0	222.4	216.0	213.9
35°	213.9	202.1	186.1	172.2	158.3	148.6	142.2	139.0
37.5°	161.5	146.5	130.5	115.5	102.7	94.1	88.8	86.6
40°	110.1	96.2	81.3	68.4	61.0	53.5	51.3	47.1
42.5°	68.4	56.7	46.0	37.4	33.2	28.9	28.9	26.7
45°	41.7	34.2	27.8	22.5	20.3	18.2	17.1	18.2
47.5°	24.6	19.2	18.2	15.0	13.9	11.8	11.8	13.9
50°	12.8	10.7	8.6	8.6	8.6	7.5	7.5	6.4
52.5°	8.6	9.6	7.5	7.5	8.6	6.4	5.3	5.3
55°	5.3	5.3	4.3	5.3	4.3	4.3	4.3	3.2
57.5°	2.1	3.2	3.2	4.3	5.3	5.3	3.2	2.1
60°	2.1	3.2	2.1	3.2	3.2	3.2	3.2	3.2
62.5°	1.1	2.1	2.1	3.2	3.2	1.1	2.1	2.1
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	1.1	1.1	2.1	1.1	2.1	1.1	1.1	1.1
70°	0.0	0.0	2.1	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)