

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: P123752

Luminaire Tested: **EL406940-TLS408WHWB**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P123752  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P13996)  
Test Lab: INNOVATION CENTER-P1  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: EL406940-TLS408WHWB  
Description: HALO 4-INCH RECESSED LED DOWNLIGHT  
SQUARE WHITE BAFFLE, SOLITE® LENS AND WHITE RING  
Light Source: (1)SURFACE MOUNT LED, 4000K CCT, 90CRI  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: 1000 (1 lamp)  
Luminaire Lumens: 830.0 lumens  
Efficiency: 83.0%  
Efficacy: 63.8 lumens/watt  
Spacing Criteria (0/90/45): 0.71 / 0.69 / 0.73  
Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')  
CIE Type: Direct

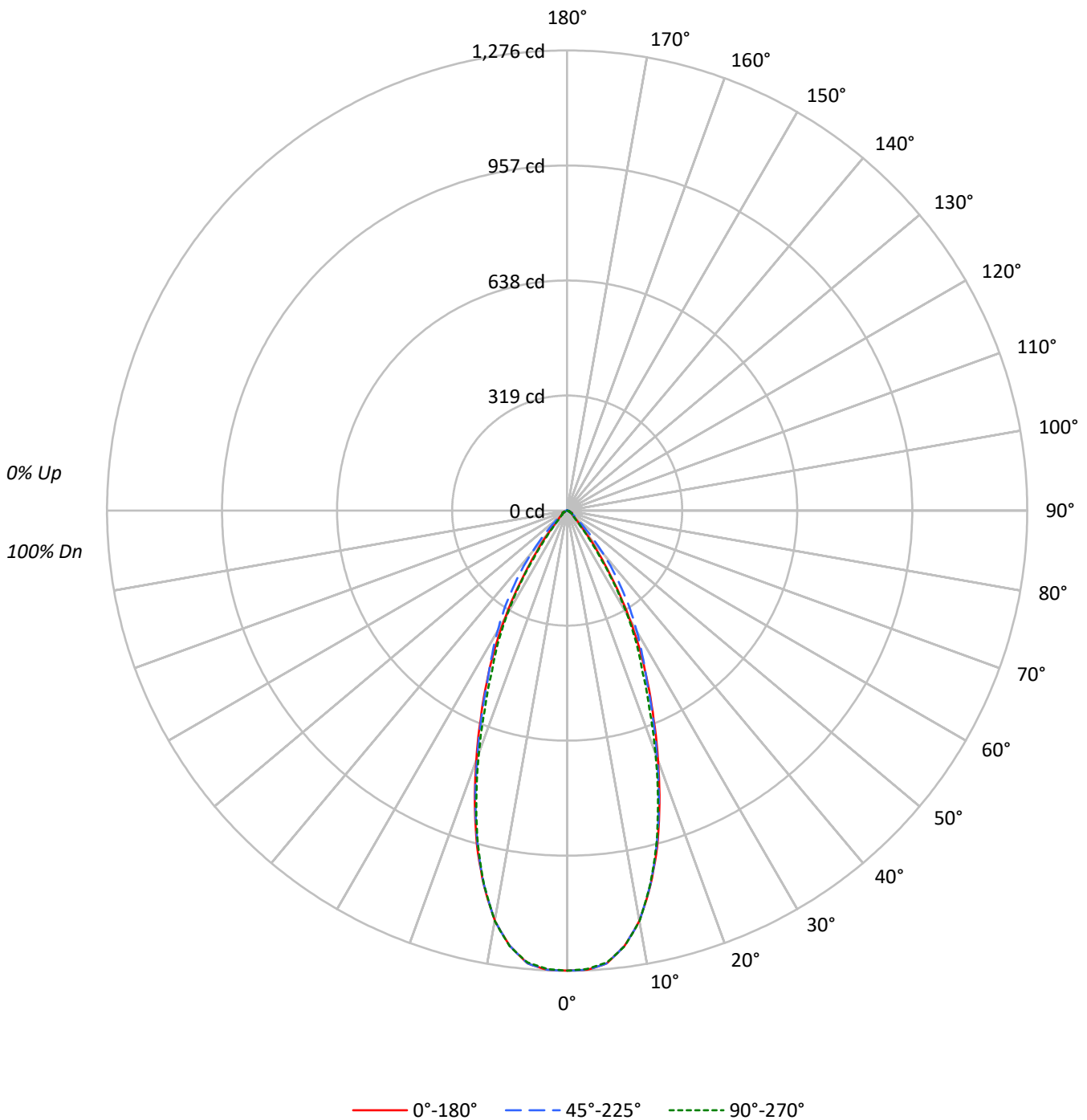
Input Watts (W): 13  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	99	99	99	99	97	97	97	97	92	92	92	88	88	88	85	85	85	83				83
1	94	92	90	88	92	90	88	87	87	85	84	84	83	81	81	80	79	78				78
2	90	86	82	80	88	84	81	79	82	79	77	79	77	75	77	75	74	72				72
3	85	80	76	73	84	79	75	72	77	74	71	75	72	70	73	71	69	68				68
4	81	75	71	67	80	74	70	67	72	69	66	71	68	65	69	67	65	63				63
5	77	71	66	63	76	70	65	62	68	65	62	67	64	61	66	63	61	59				59
6	74	67	62	58	73	66	61	58	65	61	58	64	60	57	63	59	57	56				56
7	70	63	58	55	69	62	58	55	61	57	54	60	57	54	60	56	54	53				53
8	67	60	55	52	66	59	55	52	58	54	51	57	54	51	57	53	51	50				50
9	64	57	52	49	63	56	52	49	56	51	49	55	51	48	54	51	48	47				47
10	62	54	49	46	61	54	49	46	53	49	46	52	49	46	52	48	46	45				45

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	494333	494333	494333
5°	490231	490231	489297
10°	454309	454309	454781
15°	386927	385042	384079
20°	303709	300245	294885
25°	226007	223442	211770
30°	154145	172222	148820
35°	84865	124175	78100
40°	40265	76888	33032
45°	18851	37758	15618
50°	12901	19351	11454
55°	11215	12836	11215
60°	5502	6432	4572
65°	13112	9811	8711
70°	8044	8044	8044
75°	7186	5390	7186
80°	2678	2678	2678
85°	5335	10671	5335



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture	% Lamp
0°-10°	116.8	14.1	11.7
10°-20°	264.0	31.8	26.4
20°-30°	240.5	29.0	24.1
30°-40°	136.8	16.5	13.7
40°-50°	40.9	4.9	4.1
50°-60°	15.1	1.8	1.5
60°-70°	9.8	1.2	1.0
70°-80°	5.2	0.6	0.5
80°-90°	1.0	0.1	0.1
90°-100°	0.0	0.0	0.0
100°-110°	0.0	0.0	0.0
110°-120°	0.0	0.0	0.0
120°-130°	0.0	0.0	0.0
130°-140°	0.0	0.0	0.0
140°-150°	0.0	0.0	0.0
150°-160°	0.0	0.0	0.0
160°-170°	0.0	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	621.3	74.9	62.1
0°-40°	758.1	91.3	75.8
0°-60°	814.1	98.1	81.4
0°-90°	830.0	100.0	83.0
90°-120°	0.0	0.0	0.0
90°-150°	0.0	0.0	0.0
90°-180°	0.0	0.0	0.0
0°-180°	830.0	100.0	83.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1276	1276	1276	1276	1276	
5°	1260	1260	1260	1260	1258	117
15°	964	963	960	960	957	265
25°	529	529	523	508	495	242
35°	179	214	262	208	165	118
45°	34	47	69	37	28	32
55°	17	18	19	17	17	14
65°	14	12	11	12	10	11
75°	5	5	4	5	5	5
85°	1	1	2	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°	1275.7	1275.7	1275.7	1275.7	1275.7	1275.7	1275.7	1275.7	1275.7	1275.7	1275.7
2.5°	1274.6	1275.7	1276.9	1275.7	1276.9	1274.6	1275.7	1274.6	1275.7	1274.6	1275.7
5°	1260.3	1257.9	1260.3	1260.3	1261.5	1259.1	1259.1	1257.9	1261.5	1260.3	1260.3
7.5°	1217.5	1218.7	1218.7	1217.5	1218.7	1217.5	1219.9	1221.1	1221.1	1217.5	1218.7
10°	1154.6	1155.8	1155.8	1155.8	1157.0	1155.8	1157.0	1155.8	1155.8	1154.6	1155.8
12.5°	1065.5	1065.5	1066.7	1067.9	1064.3	1064.3	1064.3	1064.3	1064.3	1064.3	1065.5
15°	964.5	964.5	965.7	963.3	963.3	963.3	962.2	962.2	962.2	959.8	959.8
17.5°	851.7	851.7	852.9	851.7	851.7	848.1	849.3	849.3	846.9	846.9	843.4
20°	736.5	736.5	736.5	735.3	735.3	734.1	732.9	732.9	731.7	728.1	728.1
22.5°	627.2	628.4	628.4	628.4	627.2	626.0	624.8	622.4	621.2	620.1	617.7
25°	528.6	528.6	531.0	529.8	529.8	528.6	528.6	527.4	526.2	522.6	520.3
27.5°	438.3	439.5	443.1	445.4	447.8	450.2	451.4	451.4	449.0	450.2	447.8
30°	344.5	345.7	350.4	356.4	367.0	371.8	380.1	383.7	384.9	384.9	382.5
32.5°	258.9	261.3	266.1	274.4	285.1	295.8	308.8	319.5	323.1	325.5	324.3
35°	179.4	181.7	188.9	197.2	207.9	220.9	235.2	248.3	257.8	262.5	260.1
37.5°	123.5	122.3	127.1	135.4	146.1	159.2	174.6	190.1	201.9	206.7	201.9
40°	79.6	79.6	83.1	87.9	98.6	109.3	123.5	137.8	149.7	152.0	147.3
42.5°	52.3	53.5	57.0	60.6	66.5	73.6	83.1	95.0	105.7	108.1	101.0
45°	34.4	36.8	38.0	40.4	45.1	48.7	57.0	64.1	67.7	68.9	64.1
47.5°	28.5	29.7	28.5	30.9	32.1	35.6	38.0	44.0	49.9	46.3	44.0
50°	21.4	21.4	22.6	21.4	23.8	24.9	28.5	30.9	30.9	32.1	28.5
52.5°	17.8	17.8	17.8	19.0	19.0	20.2	20.2	21.4	22.6	23.8	20.2
55°	16.6	17.8	16.6	17.8	17.8	17.8	17.8	19.0	19.0	19.0	17.8
57.5°	14.3	15.4	17.8	14.3	15.4	15.4	15.4	14.3	15.4	15.4	15.4
60°	7.1	7.1	9.5	7.1	8.3	7.1	8.3	7.1	8.3	8.3	8.3
62.5°	11.9	11.9	11.9	10.7	11.9	11.9	11.9	13.1	11.9	13.1	10.7
65°	14.3	11.9	11.9	10.7	11.9	11.9	11.9	10.7	10.7	10.7	11.9
67.5°	10.7	8.3	9.5	9.5	8.3	9.5	9.5	8.3	9.5	8.3	8.3
70°	7.1	5.9	5.9	5.9	8.3	7.1	7.1	7.1	7.1	7.1	8.3
72.5°	5.9	5.9	7.1	5.9	7.1	8.3	7.1	7.1	5.9	7.1	5.9
75°	4.8	4.8	4.8	4.8	5.9	4.8	3.6	4.8	3.6	3.6	4.8
77.5°	3.6	3.6	4.8	4.8	3.6	3.6	3.6	3.6	3.6	3.6	4.8
80°	1.2	1.2	2.4	1.2	2.4	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	1.2	1.2	2.4	1.2	1.2	1.2	1.2	2.4	1.2	2.4	1.2
85°	1.2	1.2	2.4	1.2	1.2	0.0	2.4	1.2	1.2	2.4	1.2
87.5°	0.0	0.0	0.0	0.0	0.0	1.2	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°	1275.7	1275.7	1275.7	1275.7	1275.7	1275.7	1275.7	1275.7
2.5°	1274.6	1274.6	1274.6	1273.4	1273.4	1274.6	1275.7	1272.2
5°	1259.1	1257.9	1260.3	1259.1	1259.1	1259.1	1257.9	1257.9
7.5°	1218.7	1216.3	1218.7	1219.9	1219.9	1218.7	1219.9	1218.7
10°	1155.8	1155.8	1155.8	1155.8	1154.6	1155.8	1155.8	1155.8
12.5°	1064.3	1064.3	1064.3	1063.1	1065.5	1063.1	1065.5	1063.1
15°	959.8	958.6	959.8	959.8	958.6	958.6	957.4	957.4
17.5°	843.4	841.0	841.0	839.8	839.8	837.4	838.6	837.4
20°	724.6	723.4	721.0	718.6	717.5	715.1	716.3	715.1
22.5°	614.1	608.2	608.2	603.4	599.9	597.5	597.5	597.5
25°	517.9	513.1	510.8	506.0	504.8	501.3	498.9	495.3
27.5°	445.4	440.7	438.3	432.4	427.6	422.9	418.1	416.9
30°	380.1	374.2	365.9	357.5	346.8	338.5	333.8	332.6
32.5°	318.3	307.7	294.6	280.3	264.9	255.4	250.6	247.1
35°	249.4	235.2	217.4	199.6	185.3	174.6	167.5	165.1
37.5°	188.9	169.9	153.2	136.6	122.3	112.8	106.9	104.5
40°	131.9	114.0	97.4	84.3	77.2	67.7	65.3	65.3
42.5°	89.1	73.6	63.0	54.6	48.7	45.1	44.0	42.8
45°	57.0	48.7	40.4	34.4	33.3	30.9	28.5	28.5
47.5°	39.2	33.3	32.1	28.5	23.8	24.9	23.8	23.8
50°	27.3	23.8	22.6	20.2	20.2	19.0	19.0	19.0
52.5°	20.2	17.8	19.0	19.0	16.6	15.4	16.6	15.4
55°	17.8	17.8	17.8	16.6	15.4	16.6	15.4	16.6
57.5°	15.4	15.4	15.4	14.3	15.4	14.3	14.3	14.3
60°	8.3	8.3	7.1	8.3	7.1	5.9	7.1	5.9
62.5°	13.1	10.7	11.9	10.7	11.9	11.9	14.3	13.1
65°	10.7	11.9	11.9	11.9	10.7	10.7	10.7	9.5
67.5°	9.5	7.1	9.5	8.3	9.5	8.3	8.3	9.5
70°	5.9	5.9	7.1	7.1	5.9	8.3	7.1	7.1
72.5°	7.1	7.1	7.1	7.1	5.9	5.9	10.7	7.1
75°	4.8	3.6	4.8	4.8	4.8	4.8	3.6	4.8
77.5°	4.8	3.6	3.6	4.8	3.6	3.6	3.6	4.8
80°	2.4	1.2	2.4	2.4	1.2	2.4	1.2	1.2
82.5°	2.4	1.2	1.2	1.2	1.2	2.4	1.2	1.2
85°	1.2	1.2	0.0	0.0	0.0	0.0	1.2	1.2
87.5°	0.0	0.0	1.2	0.0	0.0	0.0	1.2	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)