

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: P85072

Luminaire Tested: **ELG405827TBZ (50deg Beam-35deg tilt)**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P85072  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (P21166)  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: ELG405827TBZ (50deg Beam-35deg tilt)  
Description: HALO 4 INCH RECESSED FIXTURE WITH ROUND TUSCAN BRONZE TRIM,  
TUSCAN BRONZE GIMBAL, WIDE UPPER REFLECTOR AND CLEAR LENS .  
---ABSOLUTE PHOTOMETRY IS BASED ON CALIBRATION FACTORS  
CREATED USING A 500 WATT, NIST TRACEABLE, OMNI-DIRECTIONAL  
LAB LUMEN STANDARD IN THE GONIOPHOTOMETER WITH TEST DISTANCE  
OF 28.75 FEET----  
Light Source: (1) SMT LED 2700K  
(1) 221 14 WATTS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: 569 (1 lamp)  
Luminaire Lumens: 568.7 lumens  
Efficiency: 99.9%  
Efficacy: 41.8 lumens/watt  
Spacing Criteria (0/90/45): 2.62 / 0.69 / 1.51  
Luminous Opening: Vertical Cylinder (Dia: 0.33' x H: 0.1')  
CIE Type: Direct

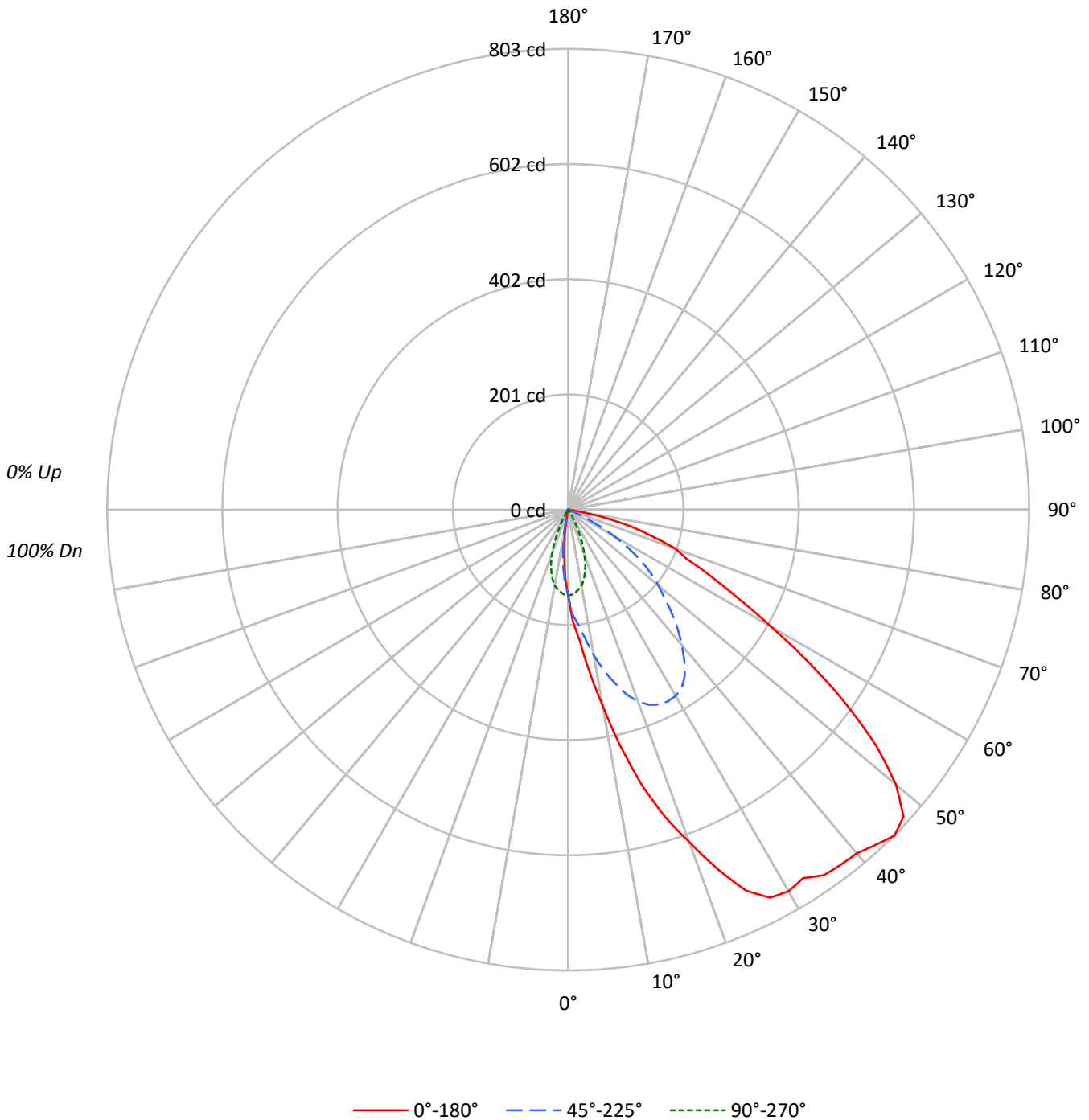
Input Watts (W): 13.6  
Input Voltage (V): NR  
Input Current (Ain): 0.11963  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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CATALOG NUMBER: ELG405827TBZ (50deg Beam-35deg tilt)

### 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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	110	106	102	99	108	104	101	98	100	97	94	96	94	92	92	91	89	87				87
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74				74
3	93	83	75	69	90	81	74	69	78	73	68	76	71	66	73	69	65	63				63
4	85	74	65	59	83	72	65	59	70	63	58	68	62	57	66	61	56	54				54
5	78	66	57	51	76	65	57	51	63	56	50	61	54	50	59	53	49	47				47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41				41
7	67	53	45	39	65	53	45	39	51	44	39	50	43	38	48	42	38	36				36
8	62	49	40	35	60	48	40	34	47	39	34	45	39	34	44	38	34	32				32
9	58	44	36	31	56	44	36	31	43	36	31	42	35	30	41	35	30	28				28
10	54	41	33	28	53	40	33	28	39	32	27	38	32	27	37	32	27	26				26

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

	0°	90°	180°
0°	18403	18403	18403
5°	27329	17313	8878
10°	40754	15748	1326
15°	57515	13044	324
20°	70953	9519	219
25°	84573	5094	104
30°	89585	1867	0
35°	92321	558	0
40°	95329	341	0
45°	101408	240	0
50°	98266	251	0
55°	82400	125	0
60°	60619	134	0
65°	43816	144	0
70°	35018	158	0
75°	22497	177	0
80°	6326	202	0
85°	1002	237	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture	% Lamp
0°-10°	14.5	2.6	2.5
10°-20°	49.2	8.7	8.7
20°-30°	93.4	16.4	16.4
30°-40°	124.5	21.9	21.9
40°-50°	129.5	22.8	22.8
50°-60°	93.1	16.4	16.4
60°-70°	47.8	8.4	8.4
70°-80°	15.2	2.7	2.7
80°-90°	1.5	0.3	0.3
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°	157.2	27.6	27.6
0°-40°	281.6	49.5	49.5
0°-60°	504.2	88.7	88.6
0°-90°	568.7	100.0	99.9
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°	568.7	100.0	99.9

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	149	149	149	149	149	
5°	228	201	144	100	74	26
15°	496	312	113	8	3	143
25°	732	374	44	2	1	333
35°	777	354	5	1	0	486
45°	803	255	2	1	0	610
55°	592	153	1	1	0	523
65°	273	32	1	1	0	279
75°	114	3	1	1	0	117
85°	4	2	1	1	0	8
90°	0	0	0	0	0	



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CATALOG NUMBER: ELG405827TBZ (50deg Beam-35deg tilt)

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	149.2	149.2	149.2	149.2	149.2	149.2	149.2	149.2	149.2	149.2	149.2
2.5°	195.2	195.2	195.2	194.3	193.3	192.4	190.5	188.7	185.8	183.0	179.3
5°	228.1	227.1	226.2	224.3	220.6	216.8	213.1	209.3	204.6	200.9	197.1
7.5°	285.3	284.4	282.5	277.8	272.2	265.6	257.2	246.8	236.5	225.3	215.9
10°	347.3	347.3	342.6	336.0	326.6	315.4	303.2	289.1	274.1	258.1	241.2
12.5°	422.4	420.5	413.9	403.6	389.5	371.7	351.0	329.4	307.8	286.3	264.7
15°	496.5	493.7	484.3	470.2	450.5	428.0	401.7	373.5	342.6	312.5	283.4
17.5°	561.3	559.4	550.9	535.9	513.4	482.4	448.6	413.0	375.4	336.9	301.3
20°	615.7	612.9	603.5	588.5	566.9	534.0	490.9	446.8	402.6	355.7	312.5
22.5°	676.7	673.0	658.9	638.2	610.1	574.4	525.6	474.9	423.3	367.9	317.2
25°	732.1	729.3	717.1	693.6	657.9	611.0	552.8	493.7	435.5	374.5	318.2
27.5°	762.1	764.0	761.2	749.0	714.2	655.1	580.0	507.8	443.0	376.4	314.4
30°	767.7	773.4	778.1	772.4	747.1	687.0	604.4	521.8	445.8	374.5	307.8
32.5°	761.2	766.8	773.4	764.0	742.4	691.7	617.6	530.3	443.9	367.9	297.5
35°	777.1	776.2	779.0	765.9	735.8	684.2	614.8	524.7	433.6	353.8	284.4
37.5°	779.9	784.6	791.2	778.1	738.7	673.9	600.7	509.6	415.8	332.3	266.6
40°	781.8	787.5	787.5	769.6	725.5	657.9	580.0	485.2	387.6	307.8	245.9
42.5°	792.2	795.0	787.5	757.4	704.9	637.3	549.1	446.8	353.8	282.5	224.3
45°	803.4	804.4	799.7	758.4	688.0	605.4	503.1	400.8	320.1	255.3	205.5
47.5°	792.2	791.2	780.9	728.3	642.9	546.2	444.9	354.8	285.3	227.1	185.8
50°	745.2	736.8	717.1	653.2	566.0	474.9	386.7	310.7	251.5	204.6	159.6
52.5°	676.7	668.3	631.7	561.3	485.2	406.4	331.3	271.2	221.5	181.1	133.3
55°	592.2	579.1	536.9	478.7	410.2	342.6	284.4	238.4	196.2	153.0	106.1
57.5°	499.3	486.2	449.6	398.9	341.6	287.2	246.8	209.3	170.8	123.9	78.8
60°	408.3	397.0	369.8	330.4	285.3	246.8	215.9	182.1	140.8	93.9	49.7
62.5°	332.3	324.7	304.1	275.0	244.0	215.9	188.7	153.0	107.0	61.9	22.5
65°	273.1	267.5	251.5	233.7	213.1	188.7	158.6	117.3	72.3	31.9	7.5
67.5°	222.4	220.6	213.1	200.9	182.1	157.7	122.0	77.0	37.5	11.3	4.7
70°	199.0	195.2	184.9	168.9	147.4	116.4	76.0	40.4	14.1	4.7	3.8
72.5°	151.1	147.4	138.9	123.9	100.4	70.4	38.5	15.0	5.6	3.8	2.8
75°	114.5	110.8	99.5	82.6	58.2	32.8	14.1	4.7	3.8	2.8	2.8
77.5°	66.6	64.8	56.3	40.4	23.5	9.4	4.7	3.8	2.8	2.8	1.9
80°	28.2	24.4	17.8	10.3	5.6	3.8	3.8	2.8	2.8	1.9	1.9
82.5°	7.5	6.6	5.6	4.7	3.8	2.8	2.8	2.8	1.9	1.9	1.9
85°	3.8	3.8	2.8	2.8	2.8	2.8	1.9	1.9	1.9	1.9	1.9
87.5°	2.8	2.8	2.8	2.8	1.9	1.9	1.9	1.9	1.9	1.9	0.9
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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CATALOG NUMBER: ELG405827TBZ (50deg Beam-35deg tilt)

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	112.5°	135°	157.5°
0°	149.2	149.2	149.2	149.2	149.2	149.2	149.2	149.2	149.2	149.2	149.2
2.5°	176.5	172.7	168.9	164.2	160.5	155.8	152.0	148.3	133.3	124.8	120.1
5°	193.3	188.7	183.0	176.5	168.9	160.5	152.0	144.5	120.1	99.5	80.7
7.5°	207.4	199.9	192.4	184.0	174.6	163.3	152.0	139.8	103.2	67.6	52.6
10°	226.2	213.1	200.9	188.7	177.4	163.3	149.2	134.2	81.7	42.2	15.0
12.5°	243.1	224.3	207.4	191.5	176.5	160.5	142.7	124.8	59.1	15.0	8.4
15°	257.2	231.8	211.2	191.5	172.7	154.9	134.2	112.6	37.5	7.5	3.8
17.5°	266.6	237.5	213.1	189.6	168.9	147.4	123.0	99.5	18.8	3.8	2.8
20°	273.1	238.4	211.2	186.8	163.3	137.0	109.8	82.6	8.4	3.8	1.9
22.5°	271.2	234.6	205.5	180.2	153.9	124.8	92.9	63.8	4.7	2.8	1.9
25°	266.6	229.0	198.0	171.8	142.7	107.9	73.2	44.1	3.8	1.9	1.9
27.5°	260.0	220.6	189.6	161.4	127.6	89.2	53.5	28.2	2.8	1.9	0.9
30°	252.5	213.1	181.1	149.2	109.8	68.5	36.6	16.0	2.8	1.9	0.9
32.5°	244.0	203.7	169.9	132.3	89.2	49.7	22.5	7.5	1.9	0.9	0.9
35°	231.8	190.5	153.9	111.7	67.6	31.9	11.3	4.7	1.9	0.9	0.9
37.5°	215.9	176.5	135.2	90.1	47.9	17.8	5.6	3.8	1.9	0.9	0.0
40°	199.9	158.6	113.6	68.5	30.0	8.4	3.8	2.8	0.9	0.9	0.0
42.5°	183.0	137.0	92.0	47.9	15.0	4.7	2.8	2.8	0.9	0.9	0.0
45°	161.4	114.5	69.5	28.2	6.6	3.8	2.8	1.9	0.9	0.9	0.0
47.5°	137.0	91.0	46.0	13.1	4.7	2.8	2.8	1.9	0.9	0.9	0.0
50°	112.6	66.6	25.3	6.6	3.8	2.8	1.9	1.9	0.9	0.9	0.0
52.5°	87.3	42.2	10.3	3.8	2.8	1.9	1.9	1.9	0.9	0.9	0.0
55°	61.0	19.7	5.6	2.8	2.8	1.9	1.9	0.9	0.9	0.9	0.0
57.5°	34.7	8.4	3.8	2.8	1.9	1.9	1.9	0.9	0.9	0.9	0.0
60°	13.1	4.7	2.8	2.8	1.9	1.9	0.9	0.9	0.9	0.9	0.0
62.5°	6.6	3.8	2.8	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.0
65°	3.8	2.8	2.8	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.0
67.5°	2.8	2.8	1.9	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.0
70°	2.8	1.9	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
72.5°	1.9	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
75°	1.9	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
77.5°	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
80°	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
82.5°	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
85°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
87.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	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



TEST NUMBER: P85072

CATALOG NUMBER: ELG405827TBZ (50deg Beam-35deg tilt)

**CANDELA DISTRIBUTION (continued):**

	180°
0°	149.2
2.5°	118.3
5°	74.1
7.5°	45.1
10°	11.3
12.5°	6.6
15°	2.8
17.5°	2.8
20°	1.9
22.5°	0.9
25°	0.9
27.5°	0.9
30°	0.0
32.5°	0.0
35°	0.0
37.5°	0.0
40°	0.0
42.5°	0.0
45°	0.0
47.5°	0.0
50°	0.0
52.5°	0.0
55°	0.0
57.5°	0.0
60°	0.0
62.5°	0.0
65°	0.0
67.5°	0.0
70°	0.0
72.5°	0.0
75°	0.0
77.5°	0.0
80°	0.0
82.5°	0.0
85°	0.0
87.5°	0.0
90°	0.0

(END OF REPORT)