

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: P85067

Luminaire Tested: **ELG405835TBZ (25deg Beam-35deg tilt)**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P85067
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (P21169)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ELG405835TBZ (25deg Beam-35deg tilt)
Description: HALO 4 INCH RECESSED FIXTURE WITH ROUND TUSCAN BRONZE TRIM,
TUSCAN BRONZE GIMBAL, NARROW 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 3500K
(1) 221 14 WATTS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 647 (1 lamp)
Luminaire Lumens: 647.4 lumens
Efficiency: 100.1%
Efficacy: 47.6 lumens/watt
Spacing Criteria (0/90/45): 2.63 / 0.67 / 1.56
Luminous Opening: Vertical Cylinder (Dia: 0.33' x H: 0.1')
CIE Type: Direct

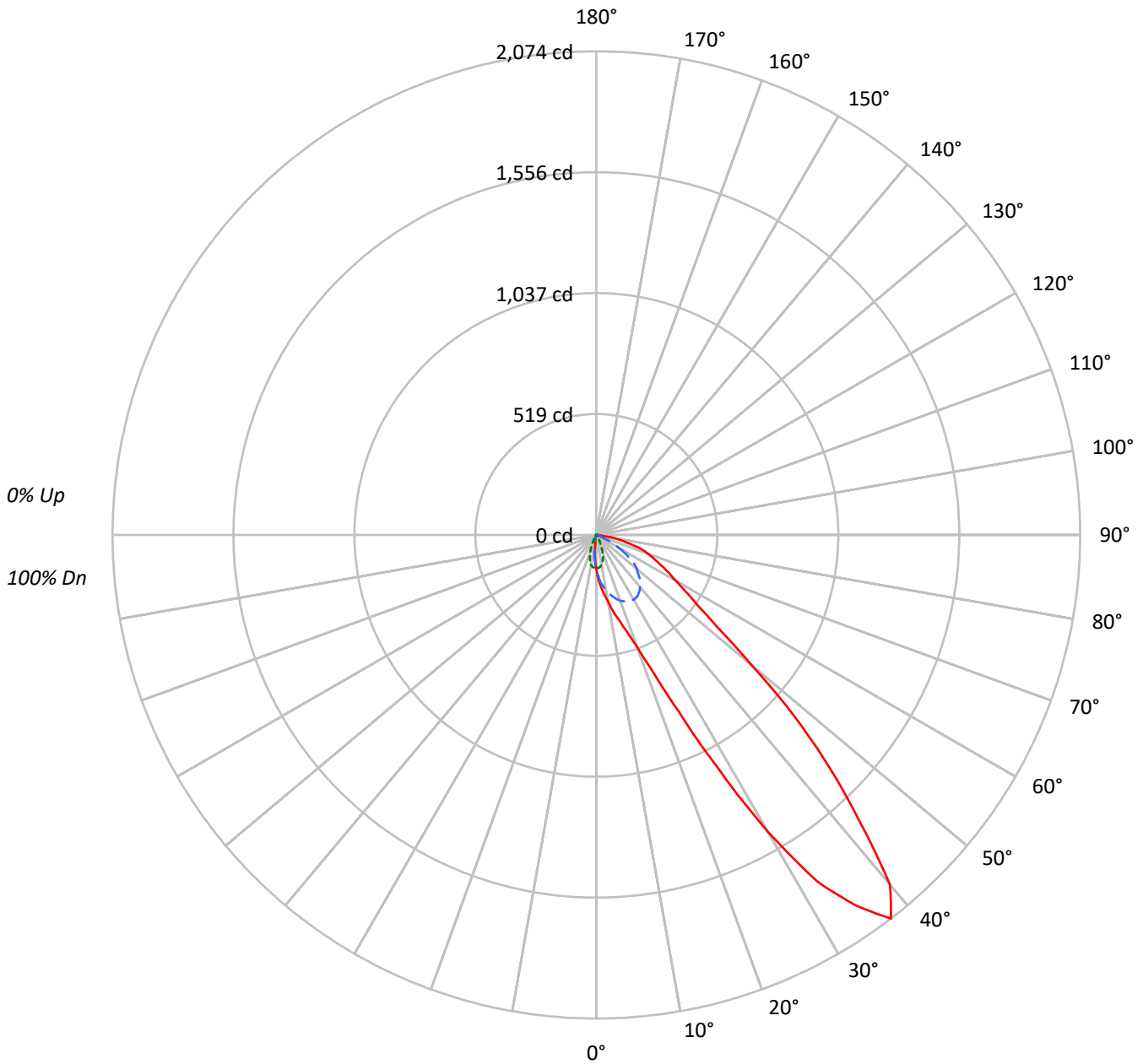
Input Watts (W): 13.6
Input Voltage (V): NR
Input Current (A_{in}): 0.11946
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P85067

CATALOG NUMBER: ELG405835TBZ (25deg Beam-35deg tilt)

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



TEST NUMBER: P85067

CATALOG NUMBER: ELG405835TBZ (25deg Beam-35deg tilt)

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	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	110	106	102	99	107	104	100	97	99	96	94	95	93	91	92	90	88	86																												
2	101	93	87	82	98	91	85	81	88	83	79	85	80	77	82	78	75	73																												
3	92	82	74	68	90	81	73	68	78	72	66	75	70	65	72	68	64	62																												
4	84	73	64	58	82	71	64	57	69	62	57	67	61	56	65	59	55	53																												
5	77	65	56	50	75	64	56	49	62	54	49	60	53	48	58	52	48	46																												
6	71	58	49	43	69	57	49	43	55	48	42	54	47	42	52	46	42	40																												
7	66	52	44	38	64	51	43	37	50	43	37	48	42	37	47	41	37	35																												
8	61	47	39	33	59	47	39	33	45	38	33	44	37	32	43	37	32	30																												
9	57	43	35	29	55	42	35	29	41	34	29	40	34	29	39	33	29	27																												
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	26	24																												

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	17811	17811	17811
5°	26646	16798	8591
10°	34136	15208	2230
15°	43950	12453	1216
20°	58784	8620	369
25°	96437	4748	0
30°	171328	2217	0
35°	230524	1628	0
40°	238785	1414	0
45°	178934	795	0
50°	114379	145	0
55°	74205	153	0
60°	58214	0	0
65°	48709	0	0
70°	41352	194	0
75°	29413	216	0
80°	15614	0	0
85°	3613	290	0



TEST NUMBER: P85067

CATALOG NUMBER: ELG405835TBZ (25deg Beam-35deg tilt)

ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	13.6	2.1	2.1
10°-20°	42.8	6.6	6.6
20°-30°	91.9	14.2	14.2
30°-40°	168.5	26.0	26.0
40°-50°	154.6	23.9	23.9
50°-60°	93.4	14.4	14.4
60°-70°	56.0	8.6	8.7
70°-80°	22.9	3.5	3.5
80°-90°	3.7	0.6	0.6
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°	148.3	22.9	22.9
0°-40°	316.9	48.9	49.0
0°-60°	564.8	87.3	87.3
0°-90°	647.4	100.0	100.1
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°	647.4	100.0	100.1

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	144	144	144	144	144	
5°	222	204	140	86	72	23
15°	379	274	108	15	10	113
25°	835	314	41	3	0	428
35°	1940	313	14	1	0	1183
45°	1418	262	6	0	0	1084
55°	533	175	1	0	0	508
65°	304	48	0	0	0	304
75°	150	13	1	0	0	162
85°	14	2	1	1	0	22
90°	0	0	0	0	0	



TEST NUMBER: P85067

CATALOG NUMBER: ELG405835TBZ (25deg Beam-35deg tilt)

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4
2.5°	188.7	187.6	186.6	185.5	184.5	182.3	180.2	177.1	173.9	171.8	167.6
5°	222.4	221.3	220.3	219.2	218.2	217.1	215.0	211.9	208.7	204.5	199.2
7.5°	256.1	255.1	254.0	250.9	246.6	241.4	236.1	230.8	226.6	222.4	216.1
10°	290.9	288.8	286.7	282.5	278.3	273.0	267.7	260.3	250.9	241.4	231.9
12.5°	338.3	336.2	332.0	325.7	317.3	307.8	295.1	282.5	270.9	260.3	247.7
15°	379.4	377.3	371.0	363.6	353.1	341.5	326.7	309.9	290.9	274.0	258.2
17.5°	433.2	430.0	421.6	407.9	390.0	372.1	352.0	332.0	310.9	288.8	267.7
20°	510.1	502.8	488.0	465.9	439.5	409.0	378.4	353.1	326.7	300.4	275.1
22.5°	637.7	624.0	593.4	548.1	498.5	454.3	410.0	371.0	338.3	307.8	277.2
25°	834.8	812.6	750.5	668.2	583.9	505.9	445.8	392.1	349.9	314.1	279.3
27.5°	1124.6	1080.4	967.6	823.2	683.0	567.1	479.6	414.2	359.4	318.3	280.4
30°	1468.2	1393.4	1213.2	990.8	780.0	620.8	503.8	429.0	366.8	320.4	278.3
32.5°	1763.4	1685.4	1427.1	1130.9	860.1	654.5	515.4	434.3	367.8	318.3	274.0
35°	1940.4	1883.5	1565.2	1210.0	900.1	660.9	512.2	430.0	364.7	313.0	269.8
37.5°	2074.3	1967.8	1598.9	1220.5	894.9	644.0	496.4	417.4	357.3	303.6	261.4
40°	1958.3	1837.1	1505.1	1158.4	842.1	606.1	476.4	400.5	343.6	290.9	249.8
42.5°	1675.9	1584.2	1333.3	1031.9	752.6	554.4	452.2	379.4	324.6	277.2	234.0
45°	1417.6	1341.7	1133.1	872.7	654.5	505.9	420.5	357.3	304.6	262.4	221.3
47.5°	1151.0	1083.5	911.7	726.2	568.1	465.9	390.0	334.1	285.6	240.3	203.4
50°	867.4	825.3	724.1	605.0	501.7	419.5	358.4	307.8	263.5	226.6	176.0
52.5°	661.9	639.8	582.9	514.4	444.8	377.3	326.7	283.5	242.4	204.5	149.7
55°	533.3	521.7	491.2	443.7	386.8	337.3	296.2	258.2	221.3	175.0	122.3
57.5°	455.3	446.9	418.4	382.6	341.5	302.5	268.8	237.2	198.2	145.5	93.8
60°	392.1	384.7	365.7	337.3	304.6	271.9	243.5	211.9	166.5	113.8	62.2
62.5°	346.8	339.4	324.6	300.4	274.0	245.6	221.3	184.5	131.8	81.2	34.8
65°	303.6	298.3	287.7	268.8	246.6	223.4	193.9	148.6	95.9	48.5	19.0
67.5°	266.7	261.4	253.0	239.3	220.3	196.0	158.1	106.5	59.0	25.3	14.8
70°	235.0	231.9	223.4	208.7	188.7	157.0	111.7	66.4	31.6	16.9	12.6
72.5°	202.4	198.2	185.5	168.6	142.3	107.5	67.5	34.8	16.9	14.8	10.5
75°	149.7	147.6	138.1	121.2	95.9	62.2	34.8	17.9	14.8	12.6	8.4
77.5°	109.6	104.3	92.8	74.8	50.6	29.5	16.9	13.7	11.6	9.5	3.2
80°	69.6	64.3	51.6	35.8	22.1	15.8	13.7	12.6	9.5	5.3	2.1
82.5°	20.0	19.0	17.9	15.8	14.8	13.7	12.6	9.5	5.3	3.2	1.1
85°	13.7	13.7	13.7	12.6	12.6	11.6	9.5	5.3	2.1	2.1	1.1
87.5°	12.6	11.6	10.5	10.5	9.5	7.4	4.2	2.1	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



TEST NUMBER: P85067

CATALOG NUMBER: ELG405835TBZ (25deg Beam-35deg tilt)

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	112.5°	135°	157.5°
0°	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4
2.5°	163.4	160.2	157.0	152.8	150.7	147.6	145.5	142.3	134.9	123.3	113.8
5°	191.8	183.4	175.0	166.5	159.2	151.8	146.5	140.2	115.9	86.4	75.9
7.5°	210.8	202.4	192.9	181.3	168.6	156.0	145.5	137.0	92.8	62.2	36.9
10°	223.4	212.9	203.4	189.7	173.9	157.0	143.3	129.6	72.7	28.5	20.0
12.5°	235.0	222.4	208.7	193.9	176.0	154.9	136.0	119.1	51.6	19.0	14.8
15°	244.5	227.7	211.9	193.9	173.9	149.7	126.5	107.5	30.6	14.8	12.6
17.5°	249.8	232.9	212.9	192.9	170.7	142.3	115.9	91.7	20.0	11.6	10.5
20°	254.0	234.0	214.0	190.8	164.4	132.8	103.3	74.8	16.9	10.5	6.3
22.5°	254.0	232.9	211.9	186.6	156.0	119.1	85.4	56.9	14.8	7.4	2.1
25°	253.0	230.8	207.6	179.2	143.3	102.2	68.5	41.1	12.6	3.2	1.1
27.5°	251.9	226.6	201.3	167.6	126.5	83.3	50.6	28.5	11.6	2.1	1.1
30°	248.7	222.4	192.9	153.9	107.5	64.3	35.8	19.0	9.5	1.1	1.1
32.5°	244.5	214.0	180.2	133.9	85.4	47.4	24.2	15.8	4.2	1.1	1.1
35°	237.2	202.4	162.3	111.7	65.3	32.7	17.9	13.7	4.2	1.1	1.1
37.5°	224.5	187.6	140.2	90.6	47.4	22.1	15.8	12.6	2.1	1.1	1.1
40°	211.9	168.6	118.0	68.5	31.6	15.8	13.7	11.6	2.1	1.1	1.1
42.5°	196.0	144.4	94.9	48.5	20.0	13.7	12.6	9.5	1.1	0.0	0.0
45°	172.9	122.3	72.7	30.6	15.8	12.6	10.5	6.3	1.1	0.0	1.1
47.5°	150.7	99.1	50.6	19.0	14.8	11.6	9.5	3.2	2.1	1.1	1.1
50°	124.4	73.8	29.5	15.8	12.6	9.5	4.2	1.1	1.1	1.1	0.0
52.5°	98.0	48.5	19.0	12.6	11.6	6.3	2.1	1.1	1.1	0.0	0.0
55°	71.7	26.4	14.8	11.6	8.4	3.2	1.1	1.1	1.1	0.0	0.0
57.5°	44.3	19.0	13.7	10.5	6.3	2.1	1.1	1.1	2.1	1.1	1.1
60°	22.1	13.7	11.6	7.4	2.1	1.1	1.1	0.0	1.1	0.0	0.0
62.5°	15.8	12.6	9.5	4.2	2.1	1.1	1.1	1.1	1.1	0.0	0.0
65°	13.7	10.5	6.3	2.1	1.1	1.1	1.1	0.0	1.1	0.0	0.0
67.5°	12.6	8.4	3.2	1.1	1.1	1.1	1.1	0.0	1.1	0.0	1.1
70°	10.5	4.2	2.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
72.5°	7.4	2.1	1.1	1.1	1.1	1.1	1.1	0.0	1.1	0.0	0.0
75°	3.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	1.1
77.5°	1.1	1.1	1.1	0.0	1.1	0.0	1.1	0.0	1.1	0.0	0.0
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	1.1	0.0	0.0
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	1.1
85°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
87.5°	1.1	1.1	1.1	1.1	1.1	0.0	1.1	0.0	1.1	1.1	1.1
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: P85067

CATALOG NUMBER: ELG405835TBZ (25deg Beam-35deg tilt)

CANDELA DISTRIBUTION (continued):

	180°
0°	144.4
2.5°	109.6
5°	71.7
7.5°	27.4
10°	19.0
12.5°	13.7
15°	10.5
17.5°	8.4
20°	3.2
22.5°	1.1
25°	0.0
27.5°	0.0
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)