

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: P85066

Luminaire Tested: **ELG405827TBZ (25 deg Beam-35deg tilt)**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P85066
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: ELG405827TBZ (25 deg 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 2700K
(1) 221 14 WATTS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 576 (1 lamp)
Luminaire Lumens: 576.3 lumens
Efficiency: 100.1%
Efficacy: 42.4 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

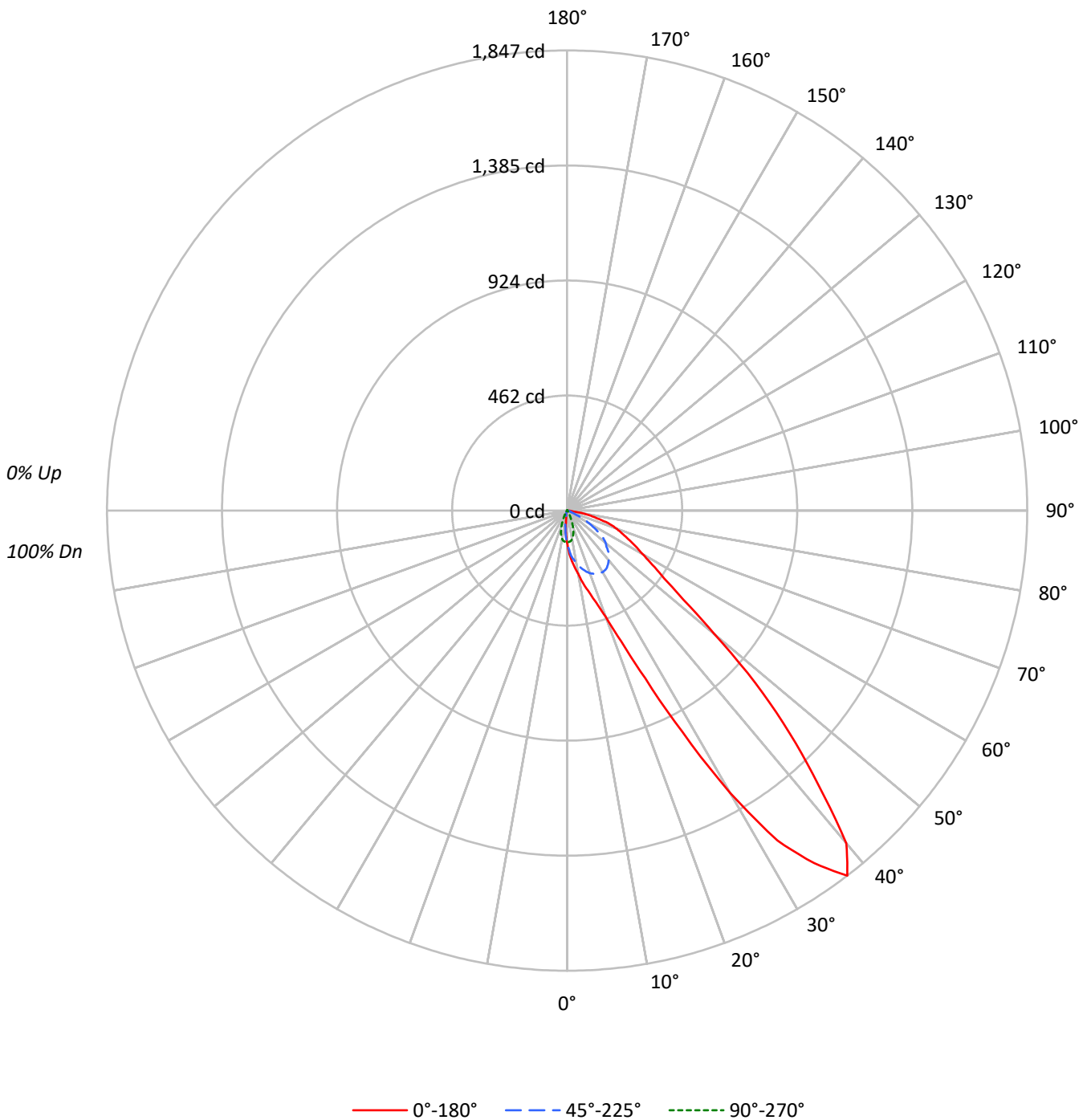
Input Watts (W): 13.6
Input Voltage (V): NR
Input Current (A_{in}): 0.11946
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: ELG405827TBZ (25 deg 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	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	58	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	49	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°	15862	15862	15862
5°	23723	14953	7644
10°	30392	13542	1983
15°	39143	11086	1089
20°	52354	7675	323
25°	85867	4228	0
30°	152564	1972	0
35°	205279	1449	0
40°	212642	1256	0
45°	159344	707	0
50°	101852	119	0
55°	66079	125	0
60°	51830	0	0
65°	43367	0	0
70°	36830	158	0
75°	26191	177	0
80°	13887	0	0
85°	3218	237	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	12.1	2.1	2.1
10°-20°	38.1	6.6	6.6
20°-30°	81.8	14.2	14.2
30°-40°	150.1	26.0	26.1
40°-50°	137.7	23.9	23.9
50°-60°	83.1	14.4	14.4
60°-70°	49.8	8.6	8.6
70°-80°	20.3	3.5	3.5
80°-90°	3.2	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°	132.1	22.9	22.9
0°-40°	282.1	49.0	49.0
0°-60°	502.9	87.3	87.3
0°-90°	576.3	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°	576.3	100.0	100.1

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	129	129	129	129	129	
5°	198	182	125	77	64	21
15°	338	244	96	13	9	101
25°	743	280	37	3	0	381
35°	1728	279	12	1	0	1054
45°	1262	234	6	0	0	965
55°	475	156	1	0	0	452
65°	270	43	0	0	0	271
75°	133	11	1	0	0	144
85°	12	2	1	1	0	20
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°	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6
2.5°	168.0	167.1	166.1	165.2	164.2	162.4	160.5	157.7	154.9	153.0	149.2
5°	198.0	197.1	196.2	195.2	194.3	193.3	191.5	188.7	185.8	182.1	177.4
7.5°	228.1	227.1	226.2	223.4	219.6	214.9	210.2	205.5	201.8	198.0	192.4
10°	259.0	257.2	255.3	251.5	247.8	243.1	238.4	231.8	223.4	214.9	206.5
12.5°	301.3	299.4	295.6	290.0	282.5	274.1	262.8	251.5	241.2	231.8	220.6
15°	337.9	336.0	330.4	323.8	314.4	304.1	291.0	275.9	259.0	244.0	229.9
17.5°	385.8	382.9	375.4	363.2	347.3	331.3	313.5	295.6	276.9	257.2	238.4
20°	454.3	447.7	434.6	414.8	391.4	364.2	336.9	314.4	291.0	267.5	245.0
22.5°	567.8	555.6	528.4	488.1	443.9	404.5	365.1	330.4	301.3	274.1	246.8
25°	743.3	723.6	668.3	595.1	520.0	450.5	397.0	349.1	311.6	279.7	248.7
27.5°	1001.5	962.0	861.6	733.0	608.2	504.9	427.0	368.9	320.1	283.4	249.7
30°	1307.4	1240.8	1080.3	882.3	694.5	552.8	448.6	382.0	326.6	285.3	247.8
32.5°	1570.2	1500.8	1270.8	1007.1	765.9	582.9	459.0	386.7	327.6	283.4	244.0
35°	1727.9	1677.2	1393.8	1077.5	801.5	588.5	456.1	382.9	324.7	278.8	240.3
37.5°	1847.1	1752.3	1423.8	1086.9	796.8	573.5	442.1	371.7	318.2	270.3	232.8
40°	1743.9	1635.9	1340.3	1031.5	749.9	539.7	424.2	356.7	306.0	259.0	222.4
42.5°	1492.3	1410.7	1187.3	918.9	670.1	493.7	402.6	337.9	289.1	246.8	208.4
45°	1262.4	1194.8	1009.0	777.1	582.9	450.5	374.5	318.2	271.2	233.7	197.1
47.5°	1024.9	964.8	811.9	646.7	505.9	414.8	347.3	297.5	254.4	214.0	181.1
50°	772.4	734.9	644.8	538.7	446.8	373.5	319.1	274.1	234.6	201.8	156.7
52.5°	589.4	569.7	519.0	458.0	396.1	336.0	291.0	252.5	215.9	182.1	133.3
55°	474.9	464.6	437.4	395.1	344.5	300.3	263.7	229.9	197.1	155.8	108.9
57.5°	405.5	398.0	372.6	340.7	304.1	269.4	239.3	211.2	176.5	129.5	83.5
60°	349.1	342.6	325.7	300.3	271.2	242.2	216.8	188.7	148.3	101.4	55.4
62.5°	308.8	302.2	289.1	267.5	244.0	218.7	197.1	164.2	117.3	72.3	31.0
65°	270.3	265.6	256.2	239.3	219.6	199.0	172.7	132.3	85.4	43.2	16.9
67.5°	237.5	232.8	225.3	213.1	196.2	174.6	140.8	94.8	52.6	22.5	13.1
70°	209.3	206.5	199.0	185.8	168.0	139.8	99.5	59.1	28.2	15.0	11.3
72.5°	180.2	176.5	165.2	150.2	126.7	95.7	60.1	31.0	15.0	13.1	9.4
75°	133.3	131.4	123.0	107.9	85.4	55.4	31.0	16.0	13.1	11.3	7.5
77.5°	97.6	92.9	82.6	66.6	45.1	26.3	15.0	12.2	10.3	8.4	2.8
80°	61.9	57.3	46.0	31.9	19.7	14.1	12.2	11.3	8.4	4.7	1.9
82.5°	17.8	16.9	16.0	14.1	13.1	12.2	11.3	8.4	4.7	2.8	0.9
85°	12.2	12.2	12.2	11.3	11.3	10.3	8.4	4.7	1.9	1.9	0.9
87.5°	11.3	10.3	9.4	9.4	8.4	6.6	3.8	1.9	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: P85066

CATALOG NUMBER: ELG405827TBZ (25 deg Beam-35deg tilt)

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	112.5°	135°	157.5°
0°	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6
2.5°	145.5	142.7	139.8	136.1	134.2	131.4	129.5	126.7	120.1	109.8	101.4
5°	170.8	163.3	155.8	148.3	141.7	135.2	130.5	124.8	103.2	77.0	67.6
7.5°	187.7	180.2	171.8	161.4	150.2	138.9	129.5	122.0	82.6	55.4	32.8
10°	199.0	189.6	181.1	168.9	154.9	139.8	127.6	115.4	64.8	25.3	17.8
12.5°	209.3	198.0	185.8	172.7	156.7	138.0	121.1	106.1	46.0	16.9	13.1
15°	217.7	202.7	188.7	172.7	154.9	133.3	112.6	95.7	27.2	13.1	11.3
17.5°	222.4	207.4	189.6	171.8	152.0	126.7	103.2	81.7	17.8	10.3	9.4
20°	226.2	208.4	190.5	169.9	146.4	118.3	92.0	66.6	15.0	9.4	5.6
22.5°	226.2	207.4	188.7	166.1	138.9	106.1	76.0	50.7	13.1	6.6	1.9
25°	225.3	205.5	184.9	159.6	127.6	91.0	61.0	36.6	11.3	2.8	0.9
27.5°	224.3	201.8	179.3	149.2	112.6	74.1	45.1	25.3	10.3	1.9	0.9
30°	221.5	198.0	171.8	137.0	95.7	57.3	31.9	16.9	8.4	0.9	0.9
32.5°	217.7	190.5	160.5	119.2	76.0	42.2	21.6	14.1	3.8	0.9	0.9
35°	211.2	180.2	144.5	99.5	58.2	29.1	16.0	12.2	3.8	0.9	0.9
37.5°	199.9	167.1	124.8	80.7	42.2	19.7	14.1	11.3	1.9	0.9	0.9
40°	188.7	150.2	105.1	61.0	28.2	14.1	12.2	10.3	1.9	0.9	0.9
42.5°	174.6	128.6	84.5	43.2	17.8	12.2	11.3	8.4	0.9	0.0	0.0
45°	153.9	108.9	64.8	27.2	14.1	11.3	9.4	5.6	0.9	0.0	0.9
47.5°	134.2	88.2	45.1	16.9	13.1	10.3	8.4	2.8	1.9	0.9	0.9
50°	110.8	65.7	26.3	14.1	11.3	8.4	3.8	0.9	0.9	0.9	0.0
52.5°	87.3	43.2	16.9	11.3	10.3	5.6	1.9	0.9	0.9	0.0	0.0
55°	63.8	23.5	13.1	10.3	7.5	2.8	0.9	0.9	0.9	0.0	0.0
57.5°	39.4	16.9	12.2	9.4	5.6	1.9	0.9	0.9	1.9	0.9	0.9
60°	19.7	12.2	10.3	6.6	1.9	0.9	0.9	0.0	0.9	0.0	0.0
62.5°	14.1	11.3	8.4	3.8	1.9	0.9	0.9	0.9	0.9	0.0	0.0
65°	12.2	9.4	5.6	1.9	0.9	0.9	0.9	0.0	0.9	0.0	0.0
67.5°	11.3	7.5	2.8	0.9	0.9	0.9	0.9	0.0	0.9	0.0	0.9
70°	9.4	3.8	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0
72.5°	6.6	1.9	0.9	0.9	0.9	0.9	0.9	0.0	0.9	0.0	0.0
75°	2.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.9
77.5°	0.9	0.9	0.9	0.0	0.9	0.0	0.9	0.0	0.9	0.0	0.0
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.9	0.0	0.0
82.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.9
85°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	0.9	0.9	0.9	0.9	0.9	0.0	0.9	0.0	0.9	0.9	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



TEST NUMBER: P85066

CATALOG NUMBER: ELG405827TBZ (25 deg Beam-35deg tilt)

CANDELA DISTRIBUTION (continued):

	180°
0°	128.6
2.5°	97.6
5°	63.8
7.5°	24.4
10°	16.9
12.5°	12.2
15°	9.4
17.5°	7.5
20°	2.8
22.5°	0.9
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)