

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: P85069

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P85069
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (P21164)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ELG405827TBZ (35deg Beam-35deg tilt)
Description: HALO 4 INCH RECESSED FIXTURE WITH ROUND TUSCAN BRONZE TRIM, TUSCAN BRONZE GIMBAL, MEDIUM 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: 568 (1 lamp)
Luminaire Lumens: 568.2 lumens
Efficiency: 100.0%
Efficacy: 41.8 lumens/watt
Spacing Criteria (0/90/45): 2.5 / 0.7 / 1.45
Luminous Opening: Vertical Cylinder (Dia: 0.33' x H: 0.1')
CIE Type: Direct

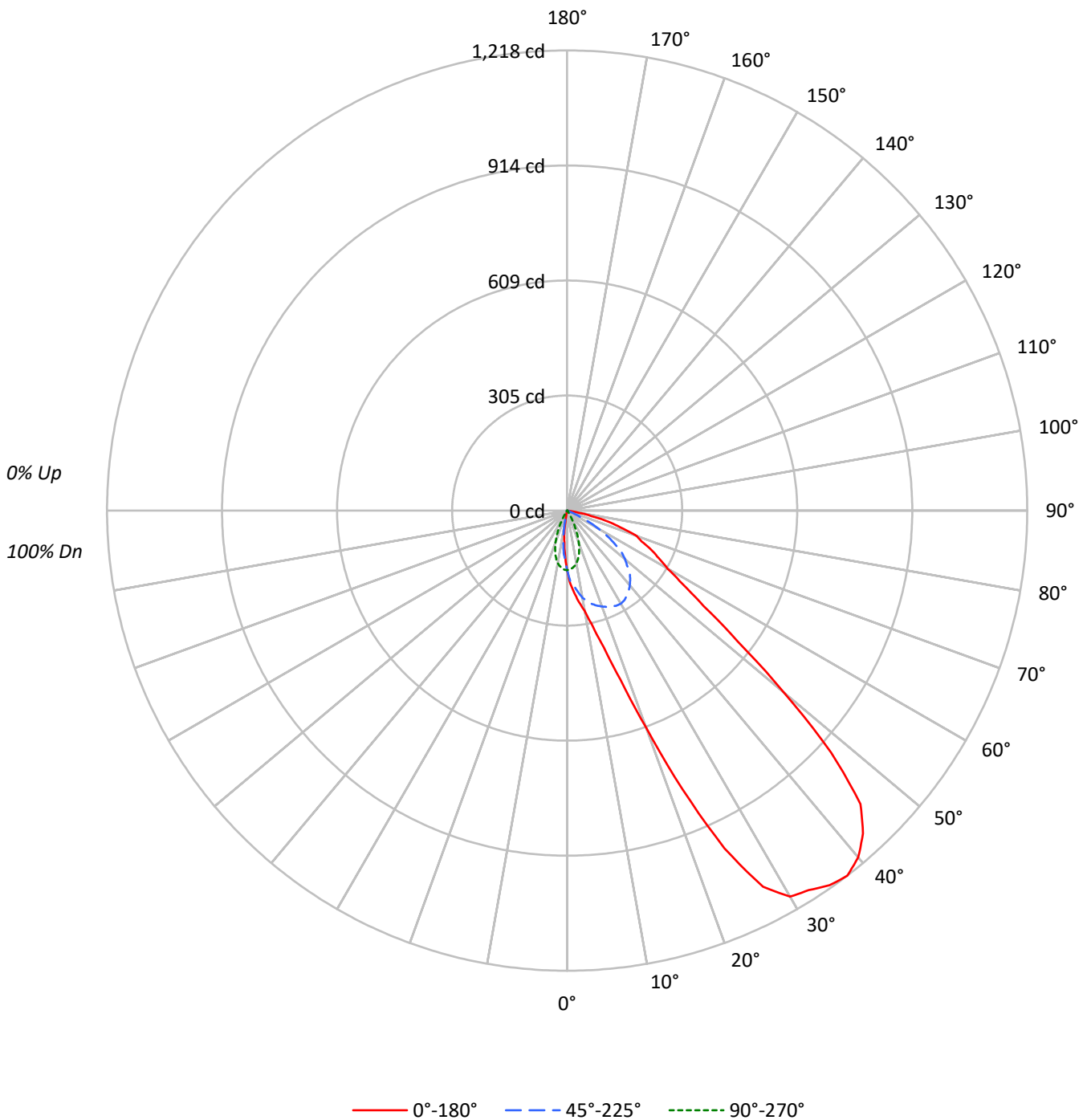
Input Watts (W): 13.6
Input Voltage (V): NR
Input Current (Ain): 0.11939
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: ELG405827TBZ (35deg 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	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87
2	102	94	88	83	99	92	87	82	89	84	80	86	82	78	83	80	77	75
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64
4	85	74	66	60	83	73	65	60	71	64	59	68	63	58	66	61	57	55
5	79	67	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50	48
6	73	60	51	45	71	59	51	45	57	50	45	55	49	44	54	48	44	42
7	67	54	46	40	65	53	45	39	52	44	39	50	44	39	49	43	39	37
8	62	49	41	35	61	48	40	35	47	40	35	46	39	35	45	39	34	32
9	58	45	37	31	57	44	36	31	43	36	31	42	35	31	41	35	31	29
10	54	41	33	28	53	41	33	28	40	33	28	39	32	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	19452	19452	19452
5°	26203	18331	10124
10°	31718	16628	1655
15°	43382	13912	440
20°	70308	10383	219
25°	113950	6076	104
30°	137674	2299	105
35°	143846	558	0
40°	146151	463	0
45°	138606	353	0
50°	98767	119	0
55°	61376	125	0
60°	45564	134	0
65°	39452	144	0
70°	34349	158	0
75°	22124	177	0
80°	5474	202	0
85°	1002	237	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	14.3	2.5	2.5
10°-20°	42.5	7.5	7.5
20°-30°	96.4	17.0	17.0
30°-40°	144.2	25.4	25.4
40°-50°	132.4	23.3	23.3
50°-60°	77.4	13.6	13.6
60°-70°	44.7	7.9	7.9
70°-80°	14.9	2.6	2.6
80°-90°	1.4	0.2	0.2
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°	153.2	27.0	27.0
0°-40°	297.4	52.3	52.4
0°-60°	507.2	89.3	89.3
0°-90°	568.2	100.0	100.0
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°	568.2	100.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	158	158	158	158	158	
5°	219	198	153	109	84	22
15°	374	256	120	8	4	118
25°	986	281	53	3	1	448
35°	1211	275	5	1	0	756
45°	1098	235	3	1	0	804
55°	441	154	1	1	0	422
65°	246	31	1	1	0	243
75°	113	4	1	1	0	114
85°	4	2	1	1	0	7
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°	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7
2.5°	194.3	193.3	193.3	193.3	192.4	191.5	190.5	189.6	187.7	185.8	184.0
5°	218.7	217.7	217.7	215.9	214.0	211.2	208.4	204.6	200.9	198.0	194.3
7.5°	245.0	244.0	244.0	242.2	239.3	236.5	232.8	229.0	223.4	216.8	210.2
10°	270.3	268.4	268.4	265.6	261.9	257.2	252.5	246.8	241.2	234.6	227.1
12.5°	313.5	307.8	307.8	301.3	292.8	282.5	272.2	262.8	254.4	245.9	237.5
15°	374.5	362.3	362.3	349.1	333.2	317.2	300.3	282.5	267.5	256.2	244.0
17.5°	469.3	449.6	449.6	427.0	397.0	364.2	332.3	306.9	282.5	263.7	249.7
20°	610.1	569.7	569.7	527.5	478.7	428.0	375.4	331.3	298.5	270.3	251.5
22.5°	797.8	731.1	731.1	657.9	575.3	496.5	424.2	359.5	311.6	275.9	252.5
25°	986.4	912.3	912.3	812.8	685.2	568.8	469.3	385.8	322.9	280.6	252.5
27.5°	1122.5	1070.0	1070.0	964.8	806.2	642.9	509.6	408.3	332.3	283.4	253.4
30°	1179.8	1152.6	1152.6	1064.3	901.0	702.0	538.7	421.4	336.0	284.4	252.5
32.5°	1191.0	1166.6	1166.6	1091.6	944.2	733.0	549.1	420.5	334.1	281.6	250.6
35°	1210.8	1182.6	1182.6	1097.2	942.3	725.5	535.9	407.3	326.6	275.0	246.8
37.5°	1218.3	1221.1	1183.5	1084.0	907.6	688.9	504.0	384.8	313.5	267.5	240.3
40°	1198.6	1142.2	1142.2	1031.5	842.8	628.8	459.9	359.5	293.8	258.1	229.0
42.5°	1159.1	1086.9	1086.9	948.0	744.3	550.9	413.0	330.4	276.9	246.8	213.1
45°	1098.1	987.4	987.4	822.2	626.0	473.0	369.8	301.3	262.8	234.6	199.9
47.5°	948.0	816.6	816.6	668.3	522.8	404.5	329.4	277.8	248.7	214.9	184.9
50°	749.0	638.2	638.2	533.1	429.9	349.1	294.7	260.0	231.8	199.9	160.5
52.5°	567.8	495.6	495.6	423.3	357.6	306.0	267.5	242.2	214.0	181.1	134.2
55°	441.1	393.3	393.3	351.0	306.9	272.2	247.8	224.3	193.3	153.9	108.9
57.5°	362.3	331.3	331.3	301.3	272.2	247.8	229.0	204.6	170.8	125.8	79.8
60°	306.9	287.2	287.2	269.4	247.8	229.9	209.3	181.1	141.7	95.7	49.7
62.5°	273.1	260.9	260.9	246.8	229.9	209.3	186.8	153.9	107.9	62.9	22.5
65°	245.9	234.6	234.6	222.4	206.5	186.8	158.6	118.3	72.3	31.0	7.5
67.5°	213.1	207.4	207.4	197.1	180.2	156.7	122.0	76.0	36.6	10.3	4.7
70°	195.2	183.0	183.0	168.0	146.4	115.4	75.1	39.4	14.1	4.7	3.8
72.5°	147.4	137.0	137.0	122.0	99.5	68.5	37.5	15.0	5.6	3.8	2.8
75°	112.6	97.6	97.6	80.7	56.3	31.0	13.1	5.6	3.8	3.8	2.8
77.5°	64.8	54.4	54.4	38.5	21.6	9.4	4.7	3.8	3.8	2.8	1.9
80°	24.4	16.0	16.0	9.4	5.6	4.7	3.8	3.8	2.8	1.9	1.9
82.5°	6.6	4.7	4.7	3.8	3.8	3.8	2.8	2.8	1.9	1.9	1.9
85°	3.8	3.8	3.8	2.8	2.8	2.8	1.9	1.9	1.9	1.9	0.9
87.5°	2.8	2.8	2.8	2.8	2.8	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 (35deg Beam-35deg tilt)

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	112.5°	135°	157.5°
0°	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7
2.5°	182.1	179.3	175.5	172.7	168.9	165.2	160.5	156.7	139.8	129.5	123.9
5°	191.5	188.7	184.9	180.2	175.5	168.0	160.5	153.0	124.8	108.9	91.0
7.5°	203.7	198.0	191.5	185.8	179.3	169.9	159.6	148.3	110.8	75.1	59.1
10°	217.7	209.3	199.9	190.5	180.2	169.9	155.8	141.7	90.1	50.7	21.6
12.5°	228.1	216.8	205.5	192.4	179.3	165.2	149.2	132.3	66.6	19.7	9.4
15°	232.8	220.6	207.4	192.4	175.5	159.6	140.8	120.1	45.1	8.4	3.8
17.5°	236.5	222.4	207.4	190.5	171.8	153.0	129.5	106.1	24.4	4.7	2.8
20°	237.5	222.4	205.5	186.8	166.1	143.6	117.3	90.1	10.3	3.8	1.9
22.5°	235.6	220.6	201.8	182.1	158.6	132.3	101.4	72.3	5.6	2.8	1.9
25°	233.7	216.8	197.1	174.6	148.3	116.4	81.7	52.6	3.8	2.8	0.9
27.5°	231.8	213.1	190.5	166.1	135.2	97.6	61.9	33.8	3.8	1.9	0.9
30°	230.9	208.4	183.0	153.9	117.3	77.0	43.2	19.7	2.8	0.9	0.9
32.5°	228.1	201.8	172.7	138.0	96.7	56.3	26.3	9.4	2.8	0.9	0.9
35°	221.5	190.5	158.6	118.3	75.1	37.5	14.1	4.7	1.9	0.9	0.0
37.5°	210.2	177.4	139.8	95.7	53.5	20.6	6.6	3.8	1.9	0.9	0.0
40°	196.2	161.4	118.3	74.1	33.8	9.4	3.8	3.8	0.9	0.9	0.0
42.5°	182.1	139.8	95.7	52.6	16.9	4.7	3.8	2.8	0.9	0.9	0.0
45°	162.4	117.3	74.1	31.0	7.5	3.8	2.8	2.8	0.9	0.9	0.0
47.5°	138.9	94.8	49.7	14.1	4.7	2.8	2.8	1.9	0.9	0.9	0.0
50°	115.4	70.4	26.3	6.6	3.8	2.8	2.8	0.9	0.9	0.9	0.0
52.5°	90.1	45.1	10.3	3.8	2.8	2.8	1.9	0.9	0.9	0.9	0.0
55°	62.9	19.7	5.6	3.8	2.8	1.9	0.9	0.9	0.9	0.9	0.0
57.5°	35.7	8.4	3.8	2.8	1.9	0.9	0.9	0.9	0.9	0.9	0.0
60°	13.1	3.8	3.8	2.8	1.9	0.9	0.9	0.9	0.9	0.9	0.0
62.5°	5.6	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	0.9	0.9	0.9	0.9	0.9	0.9	0.0
67.5°	3.8	2.8	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
70°	2.8	2.8	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
72.5°	2.8	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	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
82.5°	0.9	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: P85069

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

CANDELA DISTRIBUTION (continued):

	180°
0°	157.7
2.5°	122.0
5°	84.5
7.5°	54.4
10°	14.1
12.5°	8.4
15°	3.8
17.5°	2.8
20°	1.9
22.5°	0.9
25°	0.9
27.5°	0.9
30°	0.9
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)