

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: P85071

Luminaire Tested: **ELG405840TBZ (35deg Beam-35deg tilt)**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P85071  
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: ELG405840TBZ (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 4000K  
(1) 221 14 WATTS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: 669 (1 lamp)  
Luminaire Lumens: 668.5 lumens  
Efficiency: 99.9%  
Efficacy: 49.2 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

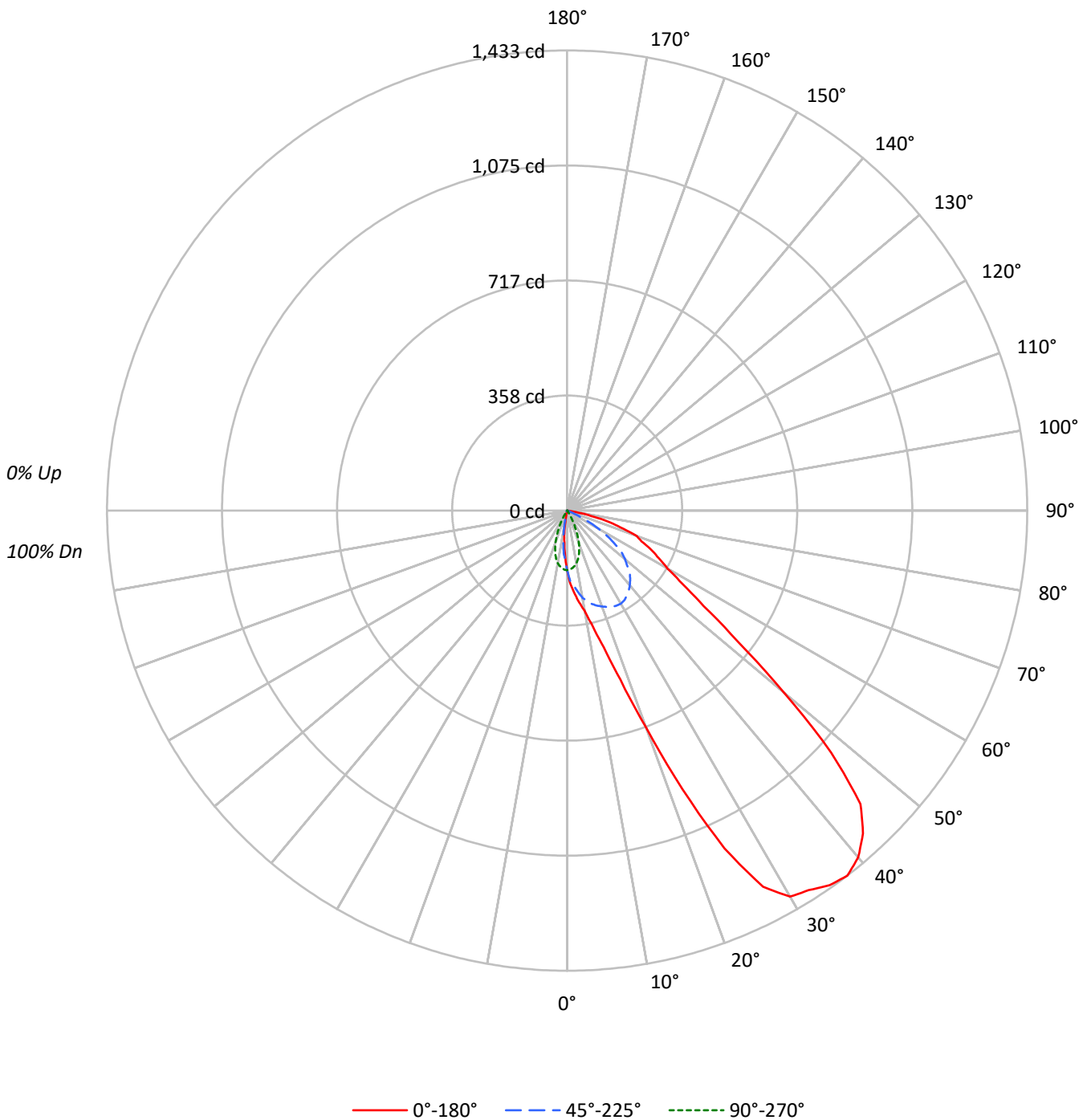
Input Watts (W): 13.6  
Input Voltage (V): NR  
Input Current (Ain): 0.11939  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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CATALOG NUMBER: ELG405840TBZ (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	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	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77					75				
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	70	66					64				
4	85	74	66	60	83	73	65	59	71	64	59	68	63	58	66	61	57					55				
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50					48				
6	72	60	51	45	71	59	51	45	57	50	44	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	56	44	36	31	43	36	31	42	35	31	41	35	31					29				
10	54	41	33	28	53	40	33	28	39	33	28	39	32	28	38	32	28					26				

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

	0°	90°	180°
0°	22881	22881	22881
5°	30828	21566	11909
10°	37316	19561	1948
15°	51039	16368	510
20°	82708	12215	254
25°	134062	7139	127
30°	161970	2707	128
35°	169222	653	0
40°	171940	537	0
45°	163068	417	0
50°	116186	145	0
55°	72215	153	0
60°	53611	163	0
65°	46415	176	0
70°	40420	194	0
75°	26034	216	0
80°	6439	247	0
85°	1160	290	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture	% Lamp
0°-10°	16.8	2.5	2.5
10°-20°	49.9	7.5	7.5
20°-30°	113.4	17.0	17.0
30°-40°	169.7	25.4	25.4
40°-50°	155.7	23.3	23.3
50°-60°	91.1	13.6	13.6
60°-70°	52.6	7.9	7.9
70°-80°	17.6	2.6	2.6
80°-90°	1.7	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°	180.2	27.0	26.9
0°-40°	349.9	52.3	52.3
0°-60°	596.7	89.3	89.2
0°-90°	668.5	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°	668.5	100.0	99.9

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	186	186	186	186	186	
5°	257	233	180	128	99	26
15°	441	301	141	10	4	139
25°	1160	330	62	3	1	527
35°	1424	324	6	1	0	889
45°	1292	276	3	1	0	946
55°	519	181	1	1	0	497
65°	289	36	1	1	0	286
75°	132	4	1	1	0	134
85°	4	2	1	1	0	8
90°	0	0	0	0	0	



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CATALOG NUMBER: ELG405840TBZ (35deg Beam-35deg tilt)

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5
2.5°	228.6	227.5	227.5	227.5	226.4	225.3	224.2	223.0	220.8	218.6	216.4
5°	257.3	257.3	256.2	254.0	251.8	248.4	245.1	240.7	236.3	233.0	228.6
7.5°	288.2	288.2	287.1	284.9	281.6	278.3	273.8	269.4	262.8	255.1	247.3
10°	318.0	316.9	315.8	312.5	308.1	302.5	297.0	290.4	283.8	276.0	267.2
12.5°	368.8	366.6	362.2	354.4	344.5	332.4	320.2	309.2	299.2	289.3	279.4
15°	440.6	437.3	426.2	410.8	392.0	373.2	353.3	332.4	314.7	301.4	287.1
17.5°	552.1	545.5	528.9	502.4	467.1	428.4	390.9	361.1	332.4	310.3	293.7
20°	717.7	704.5	670.2	620.6	563.1	503.5	441.7	389.8	351.1	318.0	295.9
22.5°	938.6	917.6	860.2	774.0	676.9	584.1	499.1	422.9	366.6	324.6	297.0
25°	1160.5	1140.6	1073.3	956.2	806.1	669.1	552.1	453.8	379.8	330.2	297.0
27.5°	1320.6	1309.6	1258.8	1135.1	948.5	756.4	599.6	480.3	390.9	333.5	298.1
30°	1388.0	1384.7	1356.0	1252.2	1060.0	825.9	633.8	495.8	395.3	334.6	297.0
32.5°	1401.2	1401.2	1372.5	1284.2	1110.8	862.4	646.0	494.7	393.1	331.3	294.8
35°	1424.4	1425.5	1391.3	1290.8	1108.6	853.5	630.5	479.2	384.3	323.5	290.4
37.5°	1433.2	1436.6	1392.4	1275.3	1067.8	810.5	593.0	452.7	368.8	314.7	282.7
40°	1410.1	1393.5	1343.8	1213.5	991.6	739.8	541.1	422.9	345.6	303.7	269.4
42.5°	1363.7	1351.5	1278.7	1115.2	875.6	648.2	485.8	388.7	325.7	290.4	250.7
45°	1291.9	1265.4	1161.6	967.3	736.5	556.5	435.1	354.4	309.2	276.0	235.2
47.5°	1115.2	1083.2	960.6	786.2	615.0	475.9	387.6	326.8	292.6	252.9	217.5
50°	881.1	846.9	750.9	627.2	505.7	410.8	346.7	305.9	272.7	235.2	188.8
52.5°	668.0	644.8	583.0	498.0	420.7	360.0	314.7	284.9	251.8	213.1	157.9
55°	519.0	503.5	462.7	413.0	361.1	320.2	291.5	263.9	227.5	181.1	128.1
57.5°	426.2	416.3	389.8	354.4	320.2	291.5	269.4	240.7	201.0	148.0	93.9
60°	361.1	354.4	337.9	316.9	291.5	270.5	246.2	213.1	166.7	112.6	58.5
62.5°	321.3	318.0	307.0	290.4	270.5	246.2	219.7	181.1	127.0	74.0	26.5
65°	289.3	286.0	276.0	261.7	242.9	219.7	186.6	139.1	85.0	36.4	8.8
67.5°	250.7	249.5	244.0	231.9	212.0	184.4	143.5	89.4	43.1	12.1	5.5
70°	229.7	226.4	215.3	197.7	172.3	135.8	88.3	46.4	16.6	5.5	4.4
72.5°	173.4	170.0	161.2	143.5	117.0	80.6	44.2	17.7	6.6	4.4	3.3
75°	132.5	128.1	114.8	95.0	66.3	36.4	15.5	6.6	4.4	4.4	3.3
77.5°	76.2	74.0	64.0	45.3	25.4	11.0	5.5	4.4	4.4	3.3	2.2
80°	28.7	25.4	18.8	11.0	6.6	5.5	4.4	4.4	3.3	2.2	2.2
82.5°	7.7	6.6	5.5	4.4	4.4	4.4	3.3	3.3	2.2	2.2	2.2
85°	4.4	4.4	4.4	3.3	3.3	3.3	2.2	2.2	2.2	2.2	1.1
87.5°	3.3	3.3	3.3	3.3	3.3	2.2	2.2	2.2	2.2	2.2	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



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	112.5°	135°	157.5°
0°	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5
2.5°	214.2	210.9	206.5	203.2	198.8	194.3	188.8	184.4	164.5	152.4	145.8
5°	225.3	221.9	217.5	212.0	206.5	197.7	188.8	180.0	146.9	128.1	107.1
7.5°	239.6	233.0	225.3	218.6	210.9	199.9	187.7	174.5	130.3	88.3	69.6
10°	256.2	246.2	235.2	224.2	212.0	199.9	183.3	166.7	106.0	59.6	25.4
12.5°	268.3	255.1	241.8	226.4	210.9	194.3	175.6	155.7	78.4	23.2	11.0
15°	273.8	259.5	244.0	226.4	206.5	187.7	165.6	141.3	53.0	9.9	4.4
17.5°	278.3	261.7	244.0	224.2	202.1	180.0	152.4	124.8	28.7	5.5	3.3
20°	279.4	261.7	241.8	219.7	195.4	168.9	138.0	106.0	12.1	4.4	2.2
22.5°	277.2	259.5	237.4	214.2	186.6	155.7	119.3	85.0	6.6	3.3	2.2
25°	274.9	255.1	231.9	205.4	174.5	136.9	96.1	61.8	4.4	3.3	1.1
27.5°	272.7	250.7	224.2	195.4	159.0	114.8	72.9	39.8	4.4	2.2	1.1
30°	271.6	245.1	215.3	181.1	138.0	90.5	50.8	23.2	3.3	1.1	1.1
32.5°	268.3	237.4	203.2	162.3	113.7	66.3	30.9	11.0	3.3	1.1	1.1
35°	260.6	224.2	186.6	139.1	88.3	44.2	16.6	5.5	2.2	1.1	0.0
37.5°	247.3	208.7	164.5	112.6	62.9	24.3	7.7	4.4	2.2	1.1	0.0
40°	230.8	189.9	139.1	87.2	39.8	11.0	4.4	4.4	1.1	1.1	0.0
42.5°	214.2	164.5	112.6	61.8	19.9	5.5	4.4	3.3	1.1	1.1	0.0
45°	191.0	138.0	87.2	36.4	8.8	4.4	3.3	3.3	1.1	1.1	0.0
47.5°	163.4	111.5	58.5	16.6	5.5	3.3	3.3	2.2	1.1	1.1	0.0
50°	135.8	82.8	30.9	7.7	4.4	3.3	3.3	1.1	1.1	1.1	0.0
52.5°	106.0	53.0	12.1	4.4	3.3	3.3	2.2	1.1	1.1	1.1	0.0
55°	74.0	23.2	6.6	4.4	3.3	2.2	1.1	1.1	1.1	1.1	0.0
57.5°	42.0	9.9	4.4	3.3	2.2	1.1	1.1	1.1	1.1	1.1	0.0
60°	15.5	4.4	4.4	3.3	2.2	1.1	1.1	1.1	1.1	1.1	0.0
62.5°	6.6	4.4	3.3	2.2	2.2	1.1	1.1	1.1	1.1	1.1	0.0
65°	4.4	3.3	3.3	2.2	1.1	1.1	1.1	1.1	1.1	1.1	0.0
67.5°	4.4	3.3	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
70°	3.3	3.3	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
72.5°	3.3	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
75°	2.2	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
77.5°	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
80°	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
85°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	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: P85071

CATALOG NUMBER: ELG405840TBZ (35deg Beam-35deg tilt)

**CANDELA DISTRIBUTION (continued):**

	180°
0°	185.5
2.5°	143.5
5°	99.4
7.5°	64.0
10°	16.6
12.5°	9.9
15°	4.4
17.5°	3.3
20°	2.2
22.5°	1.1
25°	1.1
27.5°	1.1
30°	1.1
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)