

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: P21166

Luminaire Tested: **ELG405830TBZ(50deg Beam-35deg tilt)**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P21166
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ELG405830TBZ(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 3000K
(1) 14 WATTS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 606 (1 lamp)
Luminaire Lumens: 606.0 lumens
Efficiency: 100.0%
Efficacy: 44.6 lumens/watt
Spacing Criteria (0/90/45): 2.62 / 0.69 / 1.51
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

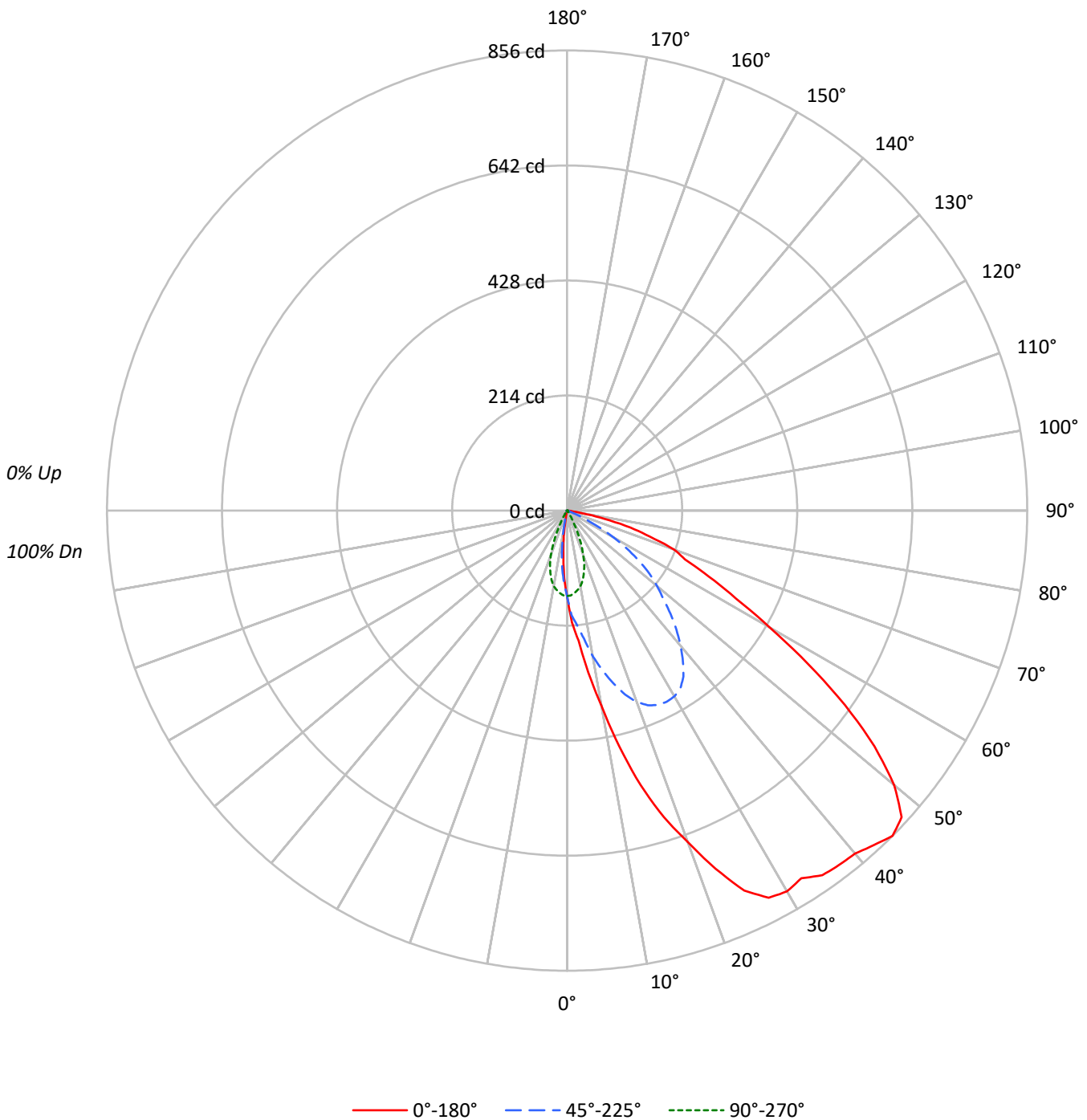
Input Watts (W): 13.6
Input Voltage (V): NR
Input Current (Ain): 0.11963
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	92	91	89	87					87			
2	101	94	88	83	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	55	50	59	53	49	47					47			
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	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	28	38	32	27	37	32	27	26					26			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	19612	19612	19612
5°	30087	19068	9782
10°	46342	17911	1503
15°	67552	15324	383
20°	86108	11551	263
25°	106156	6397	136
30°	116506	2421	0
35°	124678	753	0
40°	134127	483	0
45°	149318	349	0
50°	152362	384	0
55°	135694	215	0
60°	107311	247	0
65°	84931	292	0
70°	76455	361	0
75°	58142	477	0
80°	21310	710	0
85°	5661	1415	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	15.5	2.6	2.6
10°-20°	52.4	8.7	8.7
20°-30°	99.6	16.4	16.4
30°-40°	132.6	21.9	21.9
40°-50°	138.0	22.8	22.8
50°-60°	99.2	16.4	16.4
60°-70°	50.9	8.4	8.4
70°-80°	16.2	2.7	2.7
80°-90°	1.6	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°	167.5	27.6	27.6
0°-40°	300.1	49.5	49.5
0°-60°	537.3	88.7	88.7
0°-90°	606.0	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°	606.0	100.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	159	159	159	159	159	
5°	243	214	154	106	79	27
15°	529	333	120	8	3	152
25°	780	399	47	2	1	355
35°	828	377	5	1	0	518
45°	856	272	2	1	0	650
55°	631	163	1	1	0	557
65°	291	34	1	1	0	298
75°	122	3	1	1	0	125
85°	4	2	1	1	0	8
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°	159	159	159	159	159	159	159	159	159	159	159
2.5°	208	208	208	207	206	205	203	201	198	195	191
5°	243	242	241	239	235	231	227	223	218	214	210
7.5°	304	303	301	296	290	283	274	263	252	240	230
10°	370	370	365	358	348	336	323	308	292	275	257
12.5°	450	448	441	430	415	396	374	351	328	305	282
15°	529	526	516	501	480	456	428	398	365	333	302
17.5°	598	596	587	571	547	514	478	440	400	359	321
20°	656	653	643	627	604	569	523	476	429	379	333
22.5°	721	717	702	680	650	612	560	506	451	392	338
25°	780	777	764	739	701	651	589	526	464	399	339
27.5°	812	814	811	798	761	698	618	541	472	401	335
30°	818	824	829	823	796	732	644	556	475	399	328
32.5°	811	817	824	814	791	737	658	565	473	392	317
35°	828	827	830	816	784	729	655	559	462	377	303
37.5°	831	836	843	829	787	718	640	543	443	354	284
40°	833	839	839	820	773	701	618	517	413	328	262
42.5°	844	847	839	807	751	679	585	476	377	301	239
45°	856	857	852	808	733	645	536	427	341	272	219
47.5°	844	843	832	776	685	582	474	378	304	242	198
50°	794	785	764	696	603	506	412	331	268	218	170
52.5°	721	712	673	598	517	433	353	289	236	193	142
55°	631	617	572	510	437	365	303	254	209	163	113
57.5°	532	518	479	425	364	306	263	223	182	132	84
60°	435	423	394	352	304	263	230	194	150	100	53
62.5°	354	346	324	293	260	230	201	163	114	66	24
65°	291	285	268	249	227	201	169	125	77	34	8
67.5°	237	235	227	214	194	168	130	82	40	12	5
70°	212	208	197	180	157	124	81	43	15	5	4
72.5°	161	157	148	132	107	75	41	16	6	4	3
75°	122	118	106	88	62	35	15	5	4	3	3
77.5°	71	69	60	43	25	10	5	4	3	3	2
80°	30	26	19	11	6	4	4	3	3	2	2
82.5°	8	7	6	5	4	3	3	3	2	2	2
85°	4	4	3	3	3	3	2	2	2	2	2
87.5°	3	3	3	3	2	2	2	2	2	2	1
90°	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°	159	159	159	159	159	159	159	159	159	159	159
2.5°	188	184	180	175	171	166	162	158	142	133	128
5°	206	201	195	188	180	171	162	154	128	106	86
7.5°	221	213	205	196	186	174	162	149	110	72	56
10°	241	227	214	201	189	174	159	143	87	45	16
12.5°	259	239	221	204	188	171	152	133	63	16	9
15°	274	247	225	204	184	165	143	120	40	8	4
17.5°	284	253	227	202	180	157	131	106	20	4	3
20°	291	254	225	199	174	146	117	88	9	4	2
22.5°	289	250	219	192	164	133	99	68	5	3	2
25°	284	244	211	183	152	115	78	47	4	2	2
27.5°	277	235	202	172	136	95	57	30	3	2	1
30°	269	227	193	159	117	73	39	17	3	2	1
32.5°	260	217	181	141	95	53	24	8	2	1	1
35°	247	203	164	119	72	34	12	5	2	1	1
37.5°	230	188	144	96	51	19	6	4	2	1	0
40°	213	169	121	73	32	9	4	3	1	1	0
42.5°	195	146	98	51	16	5	3	3	1	1	0
45°	172	122	74	30	7	4	3	2	1	1	0
47.5°	146	97	49	14	5	3	3	2	1	1	0
50°	120	71	27	7	4	3	2	2	1	1	0
52.5°	93	45	11	4	3	2	2	2	1	1	0
55°	65	21	6	3	3	2	2	1	1	1	0
57.5°	37	9	4	3	2	2	2	1	1	1	0
60°	14	5	3	3	2	2	1	1	1	1	0
62.5°	7	4	3	2	2	1	1	1	1	1	0
65°	4	3	3	2	2	1	1	1	1	1	0
67.5°	3	3	2	2	2	1	1	1	1	1	0
70°	3	2	2	2	1	1	1	1	1	1	0
72.5°	2	2	2	1	1	1	1	1	1	1	0
75°	2	2	2	1	1	1	1	1	1	1	0
77.5°	2	2	1	1	1	1	1	1	1	1	0
80°	2	2	1	1	1	1	1	1	1	1	0
82.5°	2	1	1	1	1	1	1	1	1	1	0
85°	1	1	1	1	1	1	1	1	1	1	0
87.5°	1	1	1	1	1	1	1	1	1	1	0
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	180°
0°	159
2.5°	126
5°	79
7.5°	48
10°	12
12.5°	7
15°	3
17.5°	3
20°	2
22.5°	1
25°	1
27.5°	1
30°	0
32.5°	0
35°	0
37.5°	0
40°	0
42.5°	0
45°	0
47.5°	0
50°	0
52.5°	0
55°	0
57.5°	0
60°	0
62.5°	0
65°	0
67.5°	0
70°	0
72.5°	0
75°	0
77.5°	0
80°	0
82.5°	0
85°	0
87.5°	0
90°	0

(END OF REPORT)